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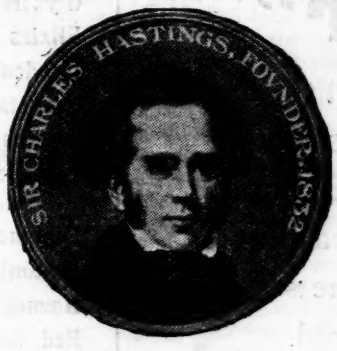

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PROFESSOR SIR ARTHUR KEITH, M.D., F.R.S.,

CONSERVATOR OF THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THINK of the condition every one of us should be in if human flesh were suddenly bereft of the power to heal. The innumerable cuts, abrasions, and punctures we inflicted on our hands and bodies during boyhood would still, when we were old men, be open weeping sores. The surgeon's trade would be gone, for none of us would care to go through life with wounds which needed stitching and dressing day by day. The late war would have filled the streets of Europe with wounded men doomed to live out their lives swathed in bandages and bound in splints. We cannot conceive human life, or any kind of life, as a successful venture in this world unless it carries with it the power to heal as part of its essential machinery.

There is a tendency among medical men to take too narrow a view of this marvellous property of repair possessed by all living tissues. The tendency is to suppose that healing is a gift which comes into operation only after birth to preserve us in the rough-and-tumble of this world. My purpose to-night is to show that healing is a process which comes into play long before birth, that Nature, in fashioning the body and brain of man—which we may describe as her wildest evolutionary ventures—has made the freest use of just that same process she employs in mending the simplest cut of the skin. From its inception until its final shape is reached the human embryo passes from stage to stage by the healing of evolutionary wounds—so neatly and promptly repaired that not even a scar remains to mark the site. The evolution of the higher forms of animals, including man, was rendered possible by healing being an inherent property of their flesh.

To note the nature of evolutionary wounds and the manner of their healing we shall glance at the upper lip of a human embryo towards the end of its sixth week of development. At this time a cleft descends from each nostril to enter the roof of the mouth, thus dividing the middle part of the upper lip from the two side parts. These clefts or wounds in the lip have not been produced by a knife, but by an evolutionary process. Originally the nose consisted of two separate pits, but at an early stage in the evolution of vertebrate animals it became advantageous that water passing into the gill chamber should first be sampled by the nose; hence each pit became connected with the mouth by a deep groove or channel. That is how it comes about that two evolutionary wounds have to be healed in the formation of the human upper lip.*

Is the process which leads to the union of the embryological parts of the lip comparable to that which seals the edges of a cut wound? For the purpose of comparison we shall take a wound of the cornea, because here, as also in the case of an evolutionary wound, the process of healing is not masked by bleeding nor by vascular reaction. A cut in the cornea is mended by a threefold process: (1) a temporary or fibrinous bond is formed to unite the cut edges; (2) into this temporary bond grow connective tissue elements from each margin of the wound until they meet and thus bridge the gap; (3) fluid collects in the tissues on each side of the wound, a circumstance which has the mechanical advantage of tending to press the cut edges together. These are the apparently simple provisions which lead to the closure of a wound of the cornea; but when we attempt to answer the question, What is the machinery which calls each of them into being? our answers are anything but certain or definite. The knife which made the wound in the cornea set free a substance or substances which converted the spilled lymph into a fibrinous temporary bond of union. It is also probable that substances are set free which stimulate neighbouring and injured connective tissue elements to action and growth. We know, too, that tissue elements which have been severed by injury tend to seek each other out again across a wound, compelled to grow under an influence which we may speak of under the name—homotactic. It is at least clear that the healing of the simplest wound calls into operation a complex machinery which is inherent in all living tissues.

When we watch the healing of a cleft in the upper lip of the human embryo we see the same threefold process as in the cornea. There is a temporary bond of union formed by the fusion of the epithelium which covers the edges of the cleft; across this temporary bond the opposite connective tissue elements press and unite, drawn together by the influence or attraction we speak of as homotactic; the edges of the cleft are pressed together by fluid which collects in the spaces of the adjacent connective tissue. Why the epithelial coverings of the cleft should adhere and fuse when they meet, and why the connective tissue elements should grow across the bond thus formed we do not yet know, but our information is sufficient to permit us to say that the healing of an evolutionary wound in the embryo and of a surgical wound in the adult is essentially the same process.

For reasons we do not yet understand an evolutionary wound may fail to heal—just as sometimes happens in one produced by the surgeon's knife. In the case of the upper lip we have thus produced the congenital condition known as cleft or hare-lip. Here Nature's operative skill has failed her, and the human surgeon has to step in and take her place.

The evolutionary operation which led to a cleavage of the lip in the human embryo took place early in the history of water-breathing vertebrates. At a later date another series of operations had to be undertaken in the ancestry of mammals to provide a horizontal partition to serve as a roof to the mouth and a floor for the nasal chambers. Here again Nature produced extensive evolutionary gaps or wounds in another manner and relied on the inherent healing powers of living and growing tissues to mend them. Three elements in the roof of the mouth had to be enlarged and united, and these three in turn had to be joined to the lower margin of the nasal septum. The operation is performed in a methodical manner, beginning at the end of the sixth week of development behind the upper lip and spreading backwards to the soft palate, the operation and process of healing occupying a period of seven weeks. The most critical point is to be seen in the embryo of the ninth week when the tongue occupies the median cleft of the palate, and the lateral folds, which are to close the gap, hang limp on each side of the tongue. In this week (the ninth) tissue fluid collects in the substance of the lateral palatal folds; they become turgid and erected, so that their free epithelial covered edges come together and adhere. At the same time their margins, as they unite together from before backwards, adhere to the epithelium covering the lower or buccal margin of the nasal septum. A vertical section made across the palate at this time shows a Y-shaped seam of epithelium serving as a temporary bond to hold the nasal septum and lateral palatal folds together until a true union can be established. Presently, as the connective tissue or mesenchyme cells press across the Y-shaped seam and unite at several points, the epithelial constituents of the seam are broken up and become slowly absorbed. All traces of the evolutionary wound have disappeared by the end of the third month of development. Once in a thousand times, for reasons we are still ignorant of, Nature fails to secure a good result in her palatal operation and thus leaves the surgeon the very difficult task of remedying her defects.

The embryological operations just described exhibit the processes of evolution working in a minor mood; we are now to see Nature at her boldest, carrying out operations on a major scale. Occasionally children are born with their brain and spinal cord spread out along the back, from crown to rump, as a great nerve plate, which at its margin becomes continuous with the skin covering the body. Here Nature has completely failed in one of her oldest and boldest of evolutionary operations—one which would have been impossible had not the virtue of healing been given to living things at the very beginning of the world's story. We see the operation worked out in all its details in the very lowest of vertebrate animals, and from

* I take this opportunity of acknowledging my indebtedness to Dr. Alex. Low, University of Aberdeen, and to Dr. Reginald Gladstone, King's College, London, for their liberality in placing their embryological material so freely at my disposal.

that we see how very ancient its invention must be. The operation of closing in the neural plates to form the brain and spinal cord occupies only about one week in time—the fourth week of development. The human embryo, at the end of this week, is only about an eighth of an inch in length. As in all surgical operations healing edges have to be approximated. When we examine a section across a human embryo early in the fourth week of development we see the epithelial neural plate being folded in, carrying at its lateral and rising margins the ectoderm or embryonic skin which retains its continuity with the plate. The mechanism which raises up and brings together the lateral margins of the neural plate and thus converts it into a tube is a simple one. It depends on the new swarms of neuroblasts which are produced in the neural plate, migrating to and becoming packed in the deeper or circumferential stratum of the plate. The margins of the neural tube come together just where the skin epithelium becomes continuous with the nerve epithelium. No sooner has contact been established than one sees a homotactic influence come into operation. The skin epithelium on each side of this great embryological wound breaks its connexions with the nerve plate and effects a union across the site of the median fissure. The neuroblasts which come into contact also adhere and regroup themselves to form the roof plate of the neural tube. Thus in less than forty-eight hours after the lateral margins of the neural folds have come into contact at any given point all trace of the great evolutionary wound has become obliterated at this point. No sooner have these epithelial unions taken place than mesenchyme or connective tissue elements lying on each side of the neural tube begin to spread upwards to meet and unite along the median dorsal line, where only a short time before existed an open gap or wound. Out of the bridge of tissue which thus comes to lie between the skin and roof of the nerve tube are fashioned the membranes of the cord and brain and all the bony and fascial tissue which help to roof over the great central nervous system. The healing of the great dorsal median evolutionary wound may completely fail, but it is far more common to meet with cases of partial failure, which give us the conditions known as spina bifida and anencephaly.

In closing the great dorsal median evolutionary wound of the body we see Nature placing her whole artillery of repair at the disposal of her evolutionary forces. What she does on a magnificent scale in this instance she applies to minor operations in many parts of the body. The lens of the eye arises as a depression or pocket of the embryonic skin; the mouth of the pocket takes on the character of a healing wound and closes; the depressed pocket of ectoderm becomes thus the lenticular vesicle.

In recent years surgeons have resorted to a similar method to obtain inlay grafts of skin when performing plastic operations; they depress an area of loose sound skin to form a pocket or cylinder, suture the mouth of the depression, which in time adheres. These little rolls of skin thus submerged can be excised afterwards and used to replace the cicatrices which result from bad burns. Another instance of the "pocket-form" of embryological surgery is seen in the production of the membranous labyrinth of the ear. Nature has fashioned this elaborate structure out of an area of skin which becomes depressed to form a pocket. The mouth of the pocket, as John Hunter discovered, remains open in certain fishes. In the human embryo the pocket is formed in the fourth week and its mouth closes by a process of concrescence or healing early in the fifth week, whereafter the pocket or otocyst quickly becomes submerged by the upgrowth of surrounding tissue. The follicles for the teeth and the basis of the thyroid gland are separated in a similar way from surface membranes. The ingrowths which give rise to hairs, sweat glands, mammary glands, and sebaceous glands retain their open mouths.

Surgeons are well aware that serous membranes, such as those that line the abdomen, thorax, and pericardium, are richly endowed with the power to unite and heal. If a mechanical or chemical irritant be applied to a serous membrane its surface becomes covered with an exudate, and very soon the cells beneath the exudate assume the growing characters and spreading tendencies shown by connective tissues on the sides of an ordinary incised wound. The film of exudate which binds one serous surface to another serves the same purpose as the fibrinous bond of an incised wound; it becomes the scaffolding or bridge across which the opposite cells spread to form a union or adhesion. All this is well known, but what is not generally recognized is that this power of repair, which is inherent in serous membranes, has been used by Nature as a means of carrying out her evolutionary projects. With the evolution of the orthograde posture in anthropoid apes, and subsequently of the plantigrade posture in man, increased fixation had to be secured for the abdominal viscera. For this end an orderly series of peritoneal adhesions are brought about in the human foetus, commencing in the third month and lasting until the time of birth. How the machinery of adhesion is set going in the foetus we do not know; I have never succeeded in detecting a film of exudate between the adhering mesenteric fold and the parietal peritoneum to which it was being applied. What one does notice is that the flattened cells covering the applied serous surfaces lose their pavement form, become rounded and then branched—the branching processes of opposite cells uniting and thus binding the two membranes together. One also sees that as this union occurs the lymph spaces of the neighbouring subserous tissues—particularly of the parietal peritoneum—are distended. Nature does not need to resort to gross mechanical or chemical stimuli to bring about the machinery of adhesion during development.

The same adhesive means are employed to secure the final closure of the openings between the pericardial and pleural cavities, and those between the pleural and peritoneal cavities. The first is sealed during the sixth week of embryonic life, and the second during the eighth week. In the latter case one notices that the cells which line the openings in the diaphragm become cubical in shape and proliferate until they meet, but the final process resembles that of repair. The communication between the tunica vaginalis and abdominal cavity is closed by the formation of adhesions at or soon after the time of birth. In these, as in other embryological operations Nature may fail, and then the surgeon may have to step in and take her place.

In watching the fashioning of the heart we can mark unsurpassed feats in plastic surgery, evolutionary wounds being produced and healed with the most perfect of results. We need say nothing of the operation, which was perfected long before vertebrate animals were evolved—the union of a right and left blood pump to form a single median tubular heart. We shall begin with the operations which came into practice when the higher vertebrate animals were being evolved, those which—as is the case with man—have their hearts completely divided to provide the lungs and the body with separate pumps. The first step towards making the heart into a double pump is the subdivision of the passage from the common auricle to the common ventricle. This was secured by bringing about an adhesion—a union—between the dorsal and ventral valves situated in the primitive auriculo-ventricular passage. How such a union was brought about can be guessed from what happens when a blood vessel is occluded by a thrombus. The lining cells of the vessels and those underlying them invade the thrombus and ultimately meet and unite in the centre. In the developing heart Nature has no need to resort to the production of a thrombus to bring about the proliferation of the living cells which are spread over the adjacent surfaces of the dorsal and ventral cusps in the auriculo-ventricular passage; she succeeds without that, but the machinery she employs to make these cells act as if they covered the edge of a wound has not yet been discovered.

Having secured the division of the common auriculo-ventricular passage, the next operation is to seal the orifice between the partition thus formed in the common passage and the interauricular septum. This is effected by a process exactly like that which leads to the closure of the passages between the pericardium and pleura and between the pleura and peritoneum. Having thus completed the separation at the auricular end of the heart, the aortic end is next attended to. The infundibulum of the right ventricle is cut off from the left ventricle by the proliferation and union of two masses of cells representing opposite rows of bulbar valves. The fourth operation, which is carried out at the end of the seventh week of development in the human embryo, closes the interventricular orifice—the gap left between the auriculo-ventricular and infundibular partitions. The pars membranacea septi

represents the cicatrix of this evolutionary operation. Then, finally, there is the closure of the foramen ovale, the temporary passage made to permit the foetal blood to pass from right to left auricle. All these passages of the heart are closed by a process of repair exactly similar to the manner in which the lumen of a blood vessel is occluded and healed. In one, or even in all of these operations undertaken to establish a double circulation Nature may fail to secure a good result, but as yet surgeons have not dared to make good her failures.

It is the exception for a cicatrix to remain to mark the site of an embryological wound. The perineal raphe, however, which passes along the scrotum from anus to foreskin, shows that the track of the evolutionary knife may be traced in some cases. The raphe is the result of one of Nature's latest evolutionary operations. With the creation of a womb in the female mammal a modified intromittent organ became necessary for the male. The raphe is the scar left in the embryological operation that established a floor for the penile urethra. The operation is exactly similar to that we have seen taking place in the palate. The process of union of the opposing genital folds begins behind and spreads forwards. The epithelial coverings adhere and form a temporary bond or scaffolding, across which the connective tissue elements spread and unite. The operation begins at the end of the eighth week, and is completed by the end of the eleventh week, but long afterwards remnants of the epithelial bond may be found in the septum of the scrotum. Many instructive examples of evolutionary union and healing are to be seen during the development of the urogenital system, such as the fusion of the genital cords and of the lower parts of the Müllerian ducts, to form the uterus and vagina.

If we apply an ultra-critical surgical standard we have to admit that Nature in her operation at the umbilicus has left a very distinct, if not an ugly scar. When, however, we consider the magnitude of the operation of which the navel marks the site, and remember that it is an evolutionary operation introduced at a comparatively recent date, we think that even the super-surgeon will admit that Nature has a wonderful technique at her disposal. For the umbilicus marks the site at which part of the body was sacrificed in order that the rest of it might spend nine months as a parasite on the maternal system and thus reach a seaworthy condition before being launched on the voyage of life.

In her most extravagant moods Nature never did anything more marvellous than when she made arrangements for the young spending the opening period of life within the womb. The feat was one requiring surgical resource and skill of the first order. Although she triumphed only when she came to the evolution of mammals, she had taken her first successful step long before, when she discovered it was possible to load an egg with yolk or nourishment sufficient for a developmental journey. She discovered how to make a small segment of the intestine come into existence precociously and form a sac large enough to contain the load of yolk. She turned the orderly realms of development into an Alice in Wonderland sort of world where the smile appears before the cat. In this case the meal for the embryo appears first and then a part of the intestine—the yolk sac—appears and encloses the meal. The premature formation of the yolk sac leads to an equally precocious appearance of the overlying area of the body wall, which, becoming greatly expanded, rises up over the body of the embryo like a double hood. The free margins of the hood meet over the embryo until only a linear gap is left between them. This gap is healed in exactly the same manner as the median fissure along the roof of the embryonic mouth. Thus it comes about that the embryos of all higher vertebrates are wrapped in an inner and outer envelope or membrane—both of them fashioned by the premature formation and expansion of a circumscribed area taken from the front wall of the body. So early are these membranes formed in the human and allied embryos that the opening in the membranes is closed almost before they have begun to expand. It is as if the seams of a coat had been sewn before the garment had been cut from the cloth. It sounds an Alice in Wonderland story, but it is true.

Let us see what has been made out of the ectoderm or epithelium which covers the outer enveloping membrane. It was, in the ancestry of higher vertebrates, merely ordinary surface epithelium covering a small area of the front body wall, but in the embryo of higher mammals the epithelium has been endowed with wonderful powers. It possesses what one might call a limited malignancy—the power of fixing itself to the interior of the womb, of invading the tissues of that organ, of effecting a union which, in the case of human gestation, will last for nine months. Then, towards the end of this period, preparations are made to break down the bond and set the child and its placenta free.

Nature is ultra-conservative in most of her affairs, but when she sets out on a new venture, like that of placentation, she throws tradition to the winds. A good example of this is seen in the way she fashioned a respiratory mechanism or lung for the embryo hatched within a shell. She had provided the kidneys with a receptacle or bladder, which naturally became distended during a period of development spent within the close confines of a shell. Out of the fundus of the bladder she fashioned a respiratory apparatus; this, too, is added to the formation of the placenta, and has to be sacrificed at or before birth.

Thus it comes about that every child born into the world has had to sacrifice three parts of its body, an offering made for a nine months' lodging. Part of the intestine, in the shape of the yolk sac, part of the bladder in the form known as the allantois, and part of the anterior wall of the body, have all to be parted with. So well does Nature usually perform her operation that only the navel or umbilicus remains to mark its site. But here again Nature may fail; the opening or duct from the intestine may remain unclosed, the bladder may be left in a leaking state, or the intestines, which at an early stage seek to follow the expanded abdominal wall, may not retreat to their cavity, the condition known as umbilical hernia being thus produced. If Nature fails, then the surgeon has to step in and reawaken the mechanism of healing by creating freshly wounded surfaces and stitching them together.

If it had been necessary many other instances could have been cited from the developing human embryo to support my thesis that healing is not a gift merely to enable man and beast to overcome the accidents of life. It is something much deeper than that. I have sought to show you that the power to heal or repair has been a gift given to living tissues from the very beginning of organized life. Because of this virtue it has been possible for Nature, in the course of the evolutionary progress which has brought man to his high estate, to create gaping embryological wounds and to heal them. The processes which the surgeon sees at work in healing wounds are the same as those with which students of embryology are familiar. As knowledge of vital processes grows the more we become certain that the problems which face the researching biologist and the operating surgeon are the same.

I had, too, one other aim in giving this lecture. Every one of us has become so familiar with the ease with which clean wounds heal that we have ceased to realize the miracle that is taking place daily under our eyes. This is true not only of the layman but of the surgeon and pathologist as well. It is more than true of men like myself who study the mechanics of development; we become so accustomed to embryonic evolutions that the underlying mysterious machinery ceases to arrest our attention or rouse our curiosity. I have stood back a little from my laboratory bench to try and make you realize the miraculousness of it all. In every instance hitherto explored the mysterious and the miraculous have proved to be the children of ignorance. When our knowledge of healing has reached the point of being a science the closure of a wound will be no longer a miracle, but it will remain none the less one of the beneficent wonders of the world.

A DEPUTATION from the London County Council, including Sir William Collins, Captain Swinton, Mrs. Hudson Lyall, and Mr. A. F. Buxton, met a number of London M.P.'s at the House of Commons, on July 25th, to urge that the Holland Park site, with the additional 15 acres on which an option could be secured, was preferable to the Bloomsbury site which has been offered through the Government to the London University. Owing to other business the meeting was brief, and is to be renewed.

STILLBIRTH: ITS CAUSES, PATHOLOGY, AND PREVENTION.*

BY

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(Working under the Medical Research Council.)

THIS communication is based upon the *post-mortem* examination of 200 consecutive cases of stillbirth and neo-natal death occurring in the Edinburgh Royal Maternity Hospital from August 1st, 1919, to November 30th, 1920. Of these, 120 were stillbirths and 80 neo-natal deaths. The term "stillbirth" is used in the popular sense to include infants born dead at and after twenty-eight weeks' pregnancy, as well as those which, though born with the heart beating, failed to breathe after complete birth of the head and body. The term "neo-natal" death, on the other hand, is used to include all infants in whom respiration took place after complete birth, even though the child only gasped a few times. In every case an effort has been made to co-ordinate the *post-mortem* findings with the clinical history of the parents and of the labour, and from the results of this co-ordinated inquiry certain practical conclusions have been drawn with regard to the supervision of pregnancy, conduct of labour, and care of the newly-born infant. The problems presented by the termination of pregnancy at a period earlier than the seventh month are in many respects so different that it seems preferable to make this the subject of a separate paper at some future date. It is impossible to give in any detail the numerous facts that have been observed during the course of the investigation, but certain broad principles have emerged, and it is these that I wish to state with as much conciseness as is consistent with clearness and continuity.

I. CRANIOTOMIES.

Of the 19 craniotomies, the operation was performed upon the after-coming head in 3. In all cases the cause of difficulty was disproportion between the head and the pelvis, due in 12 cases to pelvic contraction, in 5 to excessive size of the child, the pelvis being normal, and in 2 cases to hydrocephalus. It is an interesting fact that 9 out of the 17 non-monstrous children were born to multiparae, and that 7 of these multiparae (or 77 per cent.) had previously given birth to full-time living children, in many cases even without instrumental interference. In only 3 of the 9 multiparae in whom it was necessary to perform craniotomy was there any history of dystocia in previous labours, and one, a 5-para, had had four previous full-time natural labours.

II. ASPHYXIA NEONATORUM.

Of 120 cases of stillbirth, asphyxia was the cause of death in 49 (or 40 per cent.). In addition to these there were 15 cases of craniotomy in which the child was dead before craniotomy was performed, and in which the cause of death was probably asphyxia during prolonged and unsuccessful attempts at delivery. The real number of deaths therefore due to asphyxia would probably be 64, or 53 per cent. For the purpose of this analysis, however, the lower figure has been taken as not being open to question.

The 49 cases may be divided into those occurring before labour—"ante-partum asphyxia"—11 cases (22 per cent.), and those occurring during labour—"intra-partum asphyxia"—38 cases (77 per cent.). The chief causes of ante-partum asphyxia were placenta praevia, accidental haemorrhage, and eclamptic convulsions. The foetus in these cases had been dead some hours, or even a day or two before birth, and showed slight maceration; in the internal organs the signs of asphyxia were extremely well marked, much more so than in those cases in which asphyxia occurred during labour, for certain reasons that will become apparent later.

With regard to intra-partum asphyxia, the chief causes were disproportion between the head and the pelvis, primiparity, prolapse of the cord, and difficulty with the after-coming head in breech presentations. The two first act chiefly by causing prolongation of the second stage of labour. In at least one case the cause of this prolonged second stage seemed to be the cord round the child's neck. There were a few cases in which there was no undue prolongation of labour and no apparent reason why asphyxia should have occurred, and these emphasize the importance of keeping a careful watch on the foetal heart during the second stage. When the child is lying in a posterior position this is not always possible, and the correction of posterior positions by external manipulation before the onset of labour should therefore be attempted as a matter of routine. It must be admitted, however, that to follow the foetal heart when the head is low in the pelvis, the uterus firmly contracting, pains coming frequently, and the mother crying loudly, is not always possible. Neither is it always possible to feel pulsations in the anterior fontanelle even when this is palpable, nor to pass the examining finger over the advancing head, to palpate directly the cardiac area. Often a dangerous condition of the foetus is only indicated by passage of meconium, and when this occurs it is generally too late to render effective aid. We have, in fact, at present no constantly reliable method of discovering the condition of the foetus during even a normal second stage of labour.

Of the 38 cases of intra-partum asphyxia 11 were delivered by the breech. If we reject 2 cases of vertex presentation in which podalic version was performed after forceps had failed, and in which asphyxia might reasonably have been expected to occur had the presentation remained as vertex, and if we assume 3 per cent. to be the normal frequency of breech presentations, we arrive at the conclusion that asphyxia is eight times as likely to occur in breech as in vertex delivery.

The Post-mortem Appearances in Asphyxia Neonatorum.

These *post-mortem* appearances are, as a rule, definite, and seldom leave any doubt as to the cause of death.

1. *The External Appearances.*—The body is limp on account of the late onset of *post-mortem* rigidity. It is livid on account of deficient oxygenation of the blood. The conjunctiva is injected and the lips and finger-nails are almost black.

2. *Internal Appearances.*—The membranes of the brain are injected, the veins being filled almost to bursting point. The lateral ventricles of the brain contain, as a rule, excess of serous fluid, sometimes blood-stained. The chief signs, however, are found within the thorax. There are subpleural haemorrhages in the lungs—the so-called Tardieu spots, found chiefly around the roots on the posterior surface, on the basal surface, and on the surfaces between the lobes. There are subepicardial haemorrhages in the heart, with a peculiar grouping, mainly on the anterior surface, along the interventricular groove, and on the posterior aspect of the ventricles, along the auriculo-ventricular sulcus. In a well marked case there will also be subcapsular haemorrhages in the thymus, and occasionally one sees large interstitial haemorrhages in the thymus extending downwards from underneath the capsule. Punctate haemorrhages on the front of the aorta and pulmonary artery are frequent, and even in the fibrous pericardium. Occasionally one sees them also on the upper surface of the diaphragm and on the anterior aspect of the part of the vertebral column within the thorax. Intrathoracic haemorrhages therefore constitute one of the most important signs by which asphyxia may be recognized, but sometimes they are entirely absent. I had one case especially, where the child was born dead soon after prolapse of the cord. I was present at birth, and carried out the *post-mortem* examination soon after. In this case not a single intrathoracic haemorrhage was present, and the only internal signs of asphyxia were two other important signs that have not yet been mentioned—fluidity of the blood due to its increased carbon dioxide content, and great congestion of the internal organs.

Causes of Intrathoracic Haemorrhages.

When the child's blood supply is suddenly cut off by pressure on the cord, placental separation, or otherwise, the accumulation of carbon dioxide in the blood, by stimulating the respiratory centre, causes the infant to make a premature inspiration and expands the chest wall.

* Read at a meeting of the Edinburgh Obstetrical Society, May 11th, 1921. Abstract of report to the Medical Research Council, May, 1921.

If there is a little air in the maternal passages, as generally happens if the hand of the accoucheur has been introduced for any purpose, it is drawn into the lungs, which therefore imperfectly follow the chest wall, a negative pressure is created within the thorax and blood is sucked into it, with consequent giving way of the tiny venules and capillaries in places where they are least supported—that is, on the surfaces of the organs. We thus see why it is that in ante-partum asphyxia these intrathoracic haemorrhages are most marked, and why it is that in premature infants they are often entirely absent. In the premature infant the respiratory centre is poorly developed, attempts at respiration during asphyxia therefore ineffective, and the consequent negative pressure inside the chest comparatively slight. In ante-partum asphyxia no air whatever is available; therefore the negative pressure created inside the chest is greater, with consequently greater haemorrhage. The chief points, then, that require emphasis with regard to asphyxia are the great danger of breech presentation and the necessity for keeping a careful watch on the foetal heart during labour.

Also, the greatly increased liability to the occurrence of asphyxia in primiparae on account of rigidity of the tissues, even when the pelvis is normal and the child not excessively large, points to the desirability of inducing labour in some of these cases a little before full time, unless the pelvis is more than usually roomy or the child below the average size. Finally, most of the cases of asphyxia might have been prevented by adequate ante-natal supervision, which would have led to the discovery of such conditions as contracted pelvis, excessive size of the child, breech presentations, and albuminuria, and to the institution of preventive treatment.

III. Maceration.

In the series are included 22 macerated foetuses, in 14 of which the cause of foetal death was syphilis, in 3 albuminuria, in 1 diabetes, and in 4 the cause was doubtful, further observation of the mother being required, especially during a subsequent pregnancy. The number of cases labelled doubtful show that it is occasionally a matter of some difficulty to decide definitely as to the cause of the foetal death. The chief points to be relied upon in arriving at a diagnosis of syphilis in any particular case are:

1. The presence of spirochaetes in the foetal organs.
2. Enlargement of the foetal spleen.
3. Presence of chondro-epiphysitis.
4. Presence of active syphilis in the mother, or in both parents.
5. Strongly positive Wassermann reaction in the mother.
6. A maternal history of repeated stillbirths, abortions, or neo-natal deaths, without other discoverable cause.
7. Presence of syphilitic changes in the placenta.

At this point I shall only say one word about the value of the placental appearances in distinguishing between the causes of foetal death. In the syphilitic macerated foetus the placenta is sometimes, but not always, larger and heavier than normal. It is always more or less pale on section, and is usually thickened from the maternal to the foetal surface. It is rare to find infarcts or haemorrhages in the syphilitic placenta, whereas in the albuminuric placenta large white or red infarcts and numerous circumscribed haemorrhages are common. The albuminuric placenta in maceration is, like the syphilitic placenta, pale and avascular, but it is not usually enlarged, and is not thickened from the foetal to the maternal surface. Microscopically it is very difficult to tell the one from the other, both being almost entirely avascular, but in the syphilitic placenta the villi are larger and thicker than normal, and consequently the intervillous spaces are diminished in extent.

In deciding, therefore, as to the cause of foetal death in the case of any particular macerated foetus it is necessary to weigh carefully all the available evidence—that obtained from the parents, the placenta, and that from the examination of the foetus itself—and only rarely, and more seldom with increasing experience, should the observer be left in doubt as to the cause of death.

IV. Cerebral Haemorrhage.

Out of the 200 there were 59 cases of cerebral haemorrhage, or 29.5 per cent., and of these 20 were delivered by the breech and 39 as vertex. Of the 39 cases delivered as vertex, 17 were forceps and 22 non-forceps. Of the 17 forceps cases, 9 were classified as difficult, and in 8 no special difficulty was encountered. The causes of difficulty in the difficult cases were either contracted pelvis or excessive size of the child, and all except one occurred in primiparae. Of the 8 cases in which forceps delivery was effected without any special difficulty, 3 were premature, and in the remainder forceps had been applied early in the second stage to hasten delivery, the patient in two cases being eclamptic; in one the mother had mitral stenosis, and in another ventral hernia.

Non-forceps Cases with Cerebral Haemorrhage.

Of these there were 22 in all, and all occurred in premature infants, 16 occurring at from seven to seven and a half months, 6 at eight months, while at eight and a half months there were none. The liability to cerebral haemorrhage in premature infants is thus greatest at from seven to seven and a half months, still considerable at eight months, while at eight and a half months the liability would appear to be no greater than at full term. Further, no case of cerebral haemorrhage occurred in a full-time child in which delivery was a natural vertex.

Again, of the 59 cases, 23 were at full time and 36 premature. If, therefore, we take the normal proportion of full-time to premature infants over a large number of cases as 10 to 1, we arrive at the conclusion that the liability to cerebral haemorrhage in premature infants is sixteen times that of those at full time. Further, of the 20 cases delivered as breech, only 9 were originally breech, the remaining 11 being converted into breech by internal version for various reasons. If we reject 3 cases in which the version was done for dystocia and in which cerebral haemorrhage might reasonably be supposed to occur had they remained as vertex, there remain 17 cases of breech presentation in which cerebral haemorrhage resulted out of a total of 59. Taking, again, 3 per cent. as the normal frequency of breech delivery, it is evident that the liability to cerebral haemorrhage in breech presentation is ten times that in vertex.

Operability.—It was a remarkable fact that probably none of the haemorrhages could have been removed by operation with any hope of permanent cure. This was owing to the site being in some cases inaccessible or to the brain being too much ploughed up and damaged by the haemorrhage, or to the presence of fatal lesions in other organs, such as kidney or liver.

Relationship between Cerebral Haemorrhage and Tears of the Dural Septa.

The condition of the septa of the dura mater within the cranium was carefully observed in the last 94 cases, with the result that tears, complete or incomplete, of the tentorium cerebelli were found in 35 (37 per cent.). Of these 35 cases, delivery was by breech in 22 (63 per cent.), by vertex in 12 (34 per cent.), and by face in one (3 per cent.). Reasoning in the same way as in the case of cerebral haemorrhage, we arrive at the conclusion that breech delivery is sixteen times as likely to give rise to tentorial tears as is vertex.

Further, in every case of breech delivery at full term some degree of tentorial tearing was apparent. It was also evident from my figures relative to methods of delivery that, while complete tears of the tentorium cerebelli are exceedingly likely to occur in difficult breech cases, yet they may also occur in breech cases in which there has been no difficulty whatever—in easy and premature labours; and while in vertex cases complete tears may frequently occur in forceps delivery, they are not confined to these, but may also occur in cases where delivery has been spontaneous but prolonged and somewhat difficult. It is evident, therefore, that the problem of the prevention of injuries to the dural septa is inextricably bound up with that of the prevention of breech and of difficult vertex deliveries.

Relationship between Tears of the Dural Septa and Cerebral Haemorrhage.

An examination of the 50 cases in which either tears of the dural septa, or cerebral haemorrhage, or both together, occurred, reveals the fact that there were 21 cases in which tears of the dural septa occurred, and in which there was no cerebral haemorrhage. This means that out of a total of 35 cases of tentorial tearing, 60 per cent. were

unassociated with cerebral haemorrhage in any situation or of any degree. If, on the other hand, we examine the cases in which cerebral haemorrhage occurred with no tears of the dural septa, we find there are 15 cases of such out of a total of 29 cases, or 57 per cent. Again, if we take the cases in which tears of the dural septa and cerebral haemorrhage coexisted, we find there are only 14 cases out of the total 50 in which septal tears and cerebral haemorrhage existed either together or separately—that is to say, tears of the septa and cerebral haemorrhage existed together only in 28 per cent. These 14 cases are tabulated in my report to the Medical Research Council and the causes of the haemorrhage analysed.

The matter is too detailed to enter into in this paper. Suffice it to say that there were only three in which it was necessary to invoke the theory advocated by Holland, of tearing of the dural septa, allowing excessive moulding of the head with consequent kinking of the vein of Galen and rupture of it or its tributaries from the base of the brain and cerebellum. In some cases the haemorrhage was in regions remote from that drained by the vein of Galen; in others it was obviously due to the tears in the tentorium cerebelli, extending deeply into the straight or lateral sinus.

Intraventricular Haemorrhage.

Of these there were 22 cases, but I shall only indicate here the points with regard to it that have a practical bearing. (1) It never occurred except in premature births, being most frequent from seven to seven and a half months, less at eight months, and at eight and a half months it seemed to be no more likely to occur than at term. As a matter of practical experience one does not expect to find intraventricular haemorrhage in infants born at full term. (2) Breech delivery was ten times as likely to cause it as vertex, a result exactly corresponding to cerebral haemorrhage in general. (3) In none of the subjects were any signs noted that might have led to diagnosis. The babies were all premature; one or two were blue from birth; they sucked and cried badly, or not at all. Some of them lived as long as forty-eight hours, even with both lateral ventricles distended with blood clot.

The points to be kept in mind in the prevention of cerebral haemorrhage would therefore seem to be:

(*a*) Avoidance of breech deliveries, by cephalic version of breech presentations at a period when this is always possible, not later than the seventh or eighth month.

(*b*) Avoidance of difficult forceps deliveries; this is only possible by antenatal supervision of every case.

(*c*) Avoidance of the induction of premature labour, certainly before eight months, better still before eight and a half months.

(*d*) Manual dilatation of the parturient canal for the passage of the premature infant and preservation of the membranes unruptured as long as possible. We shall see that the latter has also an important bearing on the question of infection of the newly-born infant.

In other words, every effort should be made to prevent pressure upon the premature infant during its birth. Before eight and a half months the infant is unfitted to pass with impunity through even a normal and easy labour.

Finally, after a study of this series of cases, it is impossible to avoid the conclusion that it is only by adequate antenatal supervision of every pregnant woman that the present high morbidity rate from cerebral haemorrhage can ever be seriously diminished.

V. SYPHILIS.

There were altogether 35 cases of syphilis, including 14 macerated foetuses. I should like to state very briefly the chief points that emerged from a study of these 35 cases.

(1) *With Regard to the Mother.*—Only very occasionally does one find that the mother has any signs or even any history of syphilis. In only 6 cases of the 35 did the mother show any signs or give any history of syphilitic infection. Again, while a positive Wassermann reaction is of great value, a negative Wassermann in a woman with a history of repeated stillbirths, abortions, or neonatal deaths, without any obvious reason to account for them, such as birth injuries, albuminuria, or retroverted uterus, has little or no value in excluding syphilis. So much has this been impressed upon us that in the presence of such a history, even though the Wassermann is repeatedly negative, we do not hesitate to carry out antisyphilitic treatment. In the case of a primiparous patient the bad obstetric history is, of course, wanting, but in these cases it is, in our experience, less common to find latent syphilis and a negative Wassermann.

(2) *With Regard to the Child.*—What are the points that guide us to a diagnosis of syphilis at *post-mortem* examination? It should be borne in mind that the evidence obtained from this *post-mortem* examination of the child is often the only evidence obtainable of the presence of syphilis in the mother.

In the first place, the syphilitic child is usually premature, as were twenty-six out of my thirty-five cases. Syphilis is the commonest cause of premature labour. In the second place, there may be marasmus, but only if the child has lived at least a few days, so that if it has died in the first day or two it may be perfectly well nourished. Third, it may be jaundiced, and sometimes the jaundice is present from birth—it may be born jaundiced or the jaundice may come on immediately afterwards. Fourth, there is sometimes an oedematous condition—a hard oedema of the body and the limbs. And fifth, there may rarely be a few pustules or vesicles or areas of desquamated skin about the body, especially on the buttocks or lower limbs. These five signs are all that may be seen externally and they may be all absent, and it is rare to find more than one or two present at the same time.

The Internal Signs of Syphilis.

There are four organs, or parts, of the foetus in which we may find naked-eye changes due to syphilis.

1. *Lungs.*—As a rule, there are no naked-eye changes present. The lungs may look perfectly healthy, well aerated, float buoyantly in water, and show the normal pink colour. The typical naked-eye pneumonia alba of the textbook is rarely seen in the newly-born foetus—it was only present in one case of my series. When seen it is easily recognized; the lung is heavy and voluminous, the cut section is more or less solid, in colour it resembles grey marble, and it sinks in water. On squeezing the cut surface, more or less purulent-looking fluid exudes. But in most cases of syphilis of the newborn the lungs look perfectly healthy to naked-eye examination, except for some terminal oedema in the lower lobes.

2. *Liver.*—It is commonly said that the liver is enlarged in syphilis. I have rarely seen an enlarged liver. In only two of my cases was there enlargement, and then it was not definite; in only one case was the liver tough on section, and its surface was smooth and bile-stained. As a rule the only change present is that, in cases of marasmus, the liver is pale and somewhat fatty, which is due to the marasmus and not to the syphilis.

3. *Spleen.*—An enlarged spleen is one of the most reliable signs of syphilis in the newly-born infant. When a definitely enlarged spleen is found in an infant that is stillborn, or that dies a few weeks after birth, it may be taken as pathognomonic of syphilis. But an enlarged spleen is not always found. It was only found in five of my series of 35 cases, or 14 per cent. One sometimes has a case where the spleen appears to be enlarged, but the enlargement is not definite; it is on the border line, and one cannot be sure, for the spleen varies a good deal in size in normal cases. Speaking generally, however, I think I am nearly correct in saying that a spleen weighing more than 16 grams may be taken as definitely enlarged.

4. *Chondro-epiphysitis.*—We come now to the fourth point in the *post-mortem* diagnosis, chondro-epiphysitis. Textbooks of midwifery lay great stress upon the presence of chondro-epiphysitis as proof of the presence of syphilis. No doubt it is when present. The trouble is that one very seldom sees it. Out of my series of 21 fresh syphilitic infants I have only found it definitely present in one, and so indefinitely in two others as to be useless in diagnosis.

5. *Placenta.*—If you are fortunate you will also have the placenta to guide you. It is generally taught that the syphilitic placenta is enlarged, greasy and pale, but nothing is further from the truth. The placenta of a syphilitic child born alive looks perfectly normal and healthy. It is not increased in size; its vascularity is normal: and even on microscopic examination it is

impossible to tell it from the placenta of the healthy child. Had it been otherwise the child would have died *in utero*. If, however, the child has been born macerated, the placenta is frequently enlarged; on section it is pale and avascular, thickened from the maternal to the foetal surface, and the larger vessels stand out on the cut surface as thick white cords. The reason for this is that the enlargement of the placenta as a whole is due to the enlargement of the individual villi, and these owe their enlargement to a cellular proliferation in their stroma which blots out the capillaries; and so the child dies from the cutting off of its blood supply, and the same cause that leads to the death of the child causes the enlargement of the placenta. It is not, therefore, strictly correct to say that the syphilitic placenta is never enlarged, for it may be in the case of the syphilitic macerated foetus.

It will be seen, therefore, that the naked eye *post-mortem* examination may be completely negative. The child may appear normal and well nourished, and the lungs, liver, spleen, epiphyses and placenta may seem perfectly healthy. How, then, are we to arrive at a diagnosis of syphilis? This is achieved by histological examination in the fresh foetus of the organs, especially the thyroid, thymus, lungs and liver.

Histological Changes in these Organs.

Thyroid.—Five of my 21 fresh foetuses showed well marked fibrosis of the thyroid, which, as a result, contained few acini. In addition to this there is a peculiar proliferation of cells into the acini that remain, filling them so that little or no colloid may be visible. An interesting question arises here as to whether normal colloid-containing acini would become regenerated if specific treatment were carried out, or whether such regeneration would not take place, and the child become a cretin. Between the acini of the normal thyroid there are groups of cells which afterwards form new acini. Many of these are still present in the syphilitic thyroid, and it is probable that from these the thyroid would become sufficiently regenerated to carry on its normal function.

Thymus.—Several of my cases showed well marked fibrosis, increase of reticulum cells and plasma cells, with a peculiar change in the corpuscles of Hassal. These were enlarged, and the concentric body inside the capsule was replaced by granular débris and leucocytes, chiefly polymorphs and a few lymphocytes. In some the replacement is so complete that none of the concentric body is left, while in others some part of the latter is still left in the centre of the otherwise granular mass.

Lung.—The histological changes present in the lungs were: (1) Increased thickness and comparative avascularity of the alveolar walls, due to a fibro-cellular proliferation; (2) thickening of the vessel walls and of the walls of the bronchioles; (3) thickening of the pleura, liable to be irregular, and not always present; (4) in one case a few small microscopic gummata were found in which the chief cells distinguished were plasma cells, lymphocytes, and a few polymorphonuclear leucocytes; (5) the alveoli are usually loosely filled with catarrhal phagocytic cells derived from the endothelial cells lining them.

Liver.—Three chief types of histological changes were found: (1) Coarse, or peri-portal, cirrhosis was present in 10 cases, in which lymphocytes, plasma cells, and fibroblasts were numerous in the portal tract. (2) Fine, or intercellular, cirrhosis was present in 3 cases. Both in this and in the coarse type there was also present more or less thickening of the hepatic vein in the centre of the lobule. (3) The haemopoietic liver. In this the sinusoids are filled with large cells, chiefly lymphocytes, a few nucleated reds, also a few large cells lying in groups of two or three, and containing in their protoplasm large coarse eosinophile granules. This indicates a continuation of the blood-forming function of the liver into post-natal life. The large number of the lymphocytes present gives the liver the appearance of a case of lymphatic leukaemia, but the excess of lymphocytes is confined to the sinusoids, and is not found in the vessels of the portal canal or even in the central hepatic vein.

Spleen.—The splenic enlargement, in the cases in which it was present, was associated with peri-portal cirrhosis in the liver. Microscopically it was of the nature of a hyperplasia, while in three cases there was fibrosis. There was no definite or constant increase in reticulum cells as compared with several normal cases examined, adult and foetal. As regards plasma cells, their number in normal cases varied very much, and there was no characteristic or constant increase in their number in syphilis.

Kidney.—Only one case showed any change. In this there was marked interstitial haemorrhage between the tubules, strictly confined to the pyramids, and not all of these were affected. Microscopically there was thrombosis in the veins between the cortex and the pyramids. There was no thrombosis in the arteries, but their intima was much thickened by a cellular proliferation, and in some cases the lumen was obliterated. The condition was probably one of infarction.

Pancreas.—Fibrosis of the pancreas was well marked in several cases. The vascular coats were thickened and a young fibrous tissue spread between the acini, widely separating and destroying them. Islands of Langerhans appeared to be more numerous than in sections of the normal pancreas. In the latter they are rather scarce and somewhat difficult to find, whereas in some sections of a fibrotic syphilitic pancreas there were frequently found as many as eight in a microscopic field with 1/3 objective.

Finally, there only remains the examination for spirochaetes. It is another common idea that the spirochaete is always found in the tissues of the syphilitic foetus. That this is by no means true will be evident when I say that out of fourteen macerated syphilitic foetuses the spirochaete was only found in eight, while of twenty-one fresh syphilitic infants it was only found in one. The absence of the spirochaete was particularly unexpected in one case where twins were born at seven and a half months. The first was born macerated, and spirochaetes were very numerous in the organs, including the uterus, ovaries, tubes, and even in the wall of the heart. The other twin died, at the age of 16 days, of pneumonia. There were well-marked syphilitic changes in the liver and lungs, but no spirochaetes were found in any organ, in spite of searching examinations by dark-ground and Levaditi methods. Dr. Amand Routh has suggested to me that the infants may belong to different fathers, but there was nothing in the clinical history to suggest this, and the twins were both females and at the same stage of development. The placentas were separate, and that of the living child was much less avascular than that of the other. It would seem that it is only on the assumption that the spirochaete goes through a definite sexual cycle that its repeated absence in proved syphilitic foetuses can be explained.

It is evident therefore that the *post-mortem* diagnosis of syphilis is not always a simple matter, but that it frequently entails a careful weighing of all the available evidence—the obstetrical and clinical history of the mother, the Wassermann test, the placenta, a complete naked-eye and microscopic examination of the foetal organs. Even when all these data are available there will occasionally be a case where there is difficulty in deciding whether syphilis is present or not.

VI. Pneumonia.

Pneumonia is a common cause of death amongst infants during the first week after birth, and accounted for 21 deaths out of 80, or 26 per cent. I shall only draw attention very briefly to one or two points regarding it: (1) In the infant there is little defensive reaction as compared with the adult against the infecting agent. In the lung alveoli there are remarkably few polymorphonuclear leucocytes present. (2) Pneumonia in the first few days of life is an extremely insidious disease, generally presenting no characteristic symptoms which might lead to its presence being suspected, and to the carrying out of physical examination. (3) Even at *post-mortem* examination its presence may be missed if microscopic examination of the lungs is not carried out. The reason of this, of course, is that a small pneumonic patch, insufficient to alter the normal naked-eye appearance of the lung, may frequently be sufficient to kill the infant. (4) It is sometimes due to antenatal infection from premature rupture of the membranes, and the infant may be not only born infected, but may be even suffering from an advanced degree of pneumonia before its birth. This is illustrated by the following case:

A primipara at full time was admitted to the Royal Maternity Hospital after long delay on the district, due to primary inertia. The membranes had been ruptured for some time before admission. Forceps were applied in hospital, and a

"blue baby" was born, breathing badly, which died eight hours later. The child was at full time, very well nourished, and considerably above the average size—3,800 grams. Each pleural cavity contained about 2 oz. of blood-stained serous fluid, the lower lobes of both lungs were of solid consistence, and on squeezing the cut surfaces they exuded a yellowish frothy fluid. Microscopically the lungs showed an advanced degree of catarrhal pneumonia, in the stage of grey hepatization. At some parts no cells could be made out, and the whole appeared to be a necrotic mass in which even the alveolar walls could not be distinguished. Cultures from the lung on blood agar yielded an organism of the pneumo-bacillus group. It is impossible that such an advanced degree of grey hepatization could have taken place in the eight hours in which the child lived, and its blueness and difficulty in breathing at birth, and continuing till death, are strong evidence in support of antenatal pneumonia. Another child, in whom the membranes had been ruptured three days before birth, died on the third day, and at *post-mortem* examination there was found pneumonia, double empyema, and septic endocarditis, the causal organism being the *Bacillus coli*. Breathing from birth had been wheezy and rapid.

I should like to draw attention to a type of pneumonia that would seem to be peculiar to the newly-born infant, and which occurred in six of my cases. This might appropriately be called "acute haemorrhagic pneumonia of infants," and its course is somewhat as follows:

A child is born, perhaps at the full time or a few days prematurely. It seems perfectly healthy at birth and afterwards, when, without any warning symptoms whatever, it is found dead in bed. The face may be blanched, there may or may not be a little blood staining about the mouth and nose, and nothing more is to be seen. Suspicion of overlying or of foul play may arise. What has happened is this: the child's lungs have become infected in some way and an acute and rapid congestion occurs. In the adult this would be the first stage of a pneumonia, the next stage would be consolidation, followed, if the patient recovers, by resolution. But in the young infant the fragile vessels cannot stand the strain thrown upon them by the engorgement, and they give way and blood is poured out into the alveoli and bronchi, and the child dies suddenly, drowned in its own blood, the whole process occurring with dramatic suddenness and probably not occupying longer than a few minutes.

This acute haemorrhagic pneumonia of infants, then, seems to be a distinct clinical and pathological type, and while the etiological factor in most cases is organismal, there is some evidence to support the theory that it may occasionally be of the nature of an anaphylaxis. The important points to be kept in mind are the necessity for guarding the newly born infant against infection, and of avoiding, when possible, the premature rupture of the membranes during labour.

VII. Suprarenal Haemorrhage.

There were 18 cases of haemorrhage into the suprarenal body. All were born dead except two, the cause of death being in most cases asphyxia. In one case the child lived four hours, the haemorrhage being severe and into the medulla of the left suprarenal body. Of the 16 cases that were born dead, the suprarenal haemorrhage was the probable cause of death in one, no other cause being found.

Site of Haemorrhage.

Into medulla of both	5
Into medulla of right	4
Into medulla of left	5
Under or into capsule of both	1
Under or into capsule of right	1
Under or into capsule of left	2

Six cases were delivered by vertex and 12 by breech. Of the 6 cases delivered by vertex, in 3 the haemorrhage was into or underneath the gland capsule, and in only one of these was it severe. Rejecting for statistical purposes the two slight cases, there remain 4 cases in which delivery was by vertex. In 3 of these the haemorrhage was into the medulla, in all into the right only, and in one beneath the capsule. Of the 12 breech deliveries, in 3 podalic version had been done after forceps had failed on the forecoming head. If we reject these 3 cases, as it might reasonably be supposed that suprarenal haemorrhage would have occurred had they remained vertex, and assuming again 3 per cent. as the normal frequency of breech presentation, we arrive at the conclusion that breech delivery is twenty-two times as likely to give rise to suprarenal haemorrhage as delivery by the vertex. In vertex presentations suprarenal haemorrhage only occurred in difficult forceps deliveries, while in breech cases it occurred also in labours in which no special difficulty was encountered. Again, of the 15 severe cases, 9 were at full time and 6 premature. Assuming 1 in 10 to be the normal proportion of premature to full-time labours, we find that suprarenal haemorrhage is four times as likely to occur in a premature labour as in a labour at full time.

Causes of Suprarenal Haemorrhage.

Various causes have been invoked from time to time to explain these suprarenal haemorrhages. It has been suggested that pressure upon the liver compresses the inferior vena cava between the liver and the vertebral column, thus damming back the blood into the suprarenal veins (Mather). Too early ligation of the cord has been suggested, but this seems to be ruled out by the fact that the increased pressure would not fall directly upon the inferior vena cava, neither would this cause operate more frequently in breech than in vertex presentation. Syphilis, being a frequent predisposing cause of haemorrhage in other organs, would no doubt also predispose to suprarenal haemorrhage by furnishing a capillary toxin, but it was not present in any of my cases.

It was found from a study of my tables that of the 16 cases in which the child was stillborn, 15 were associated with asphyxia, and it seems probable that this is an important factor in its causation. It is certain that haemorrhages over the cerebral hemispheres, around the small veins of the meninges, are frequently found as a result of asphyxia in premature infants, while from the same cause large subcapsular and even interstitial haemorrhages may be met with in the thymus, even in full-time infants. In the premature infant the vessels are extremely fragile and their muscular coats undeveloped, and it is possible that they give way easily under the strain of the sudden congestion of the internal organs in asphyxia. In no organ would this be more likely to occur than in the suprarenal, which is excessively vascular and in which there is a minimum of supporting fibrous stroma. The organ also is so situated, close to the termination of the superior vena cava, that it is likely to receive the full force of the backward pressure of blood from the distended right auricle. In discussing asphyxia, however, we found that breech delivery was eight times as likely to give rise to asphyxia as vertex delivery, while it is twenty-two times as likely as vertex to give rise to suprarenal haemorrhage. It would appear from this discrepancy that there must be some other factor at work in producing suprarenal haemorrhage, and coming much more prominently into play in breech than in vertex deliveries. This factor is probably the direct trauma incidental to the passage of the breech and abdomen through the comparatively undilated parturient canal and the pressure of the child's lower limbs against the abdominal organs.

VIII. Premature Labour.

Out of the 200 cases 95 were born prematurely. Bearing in mind that every child should be carried to full time unless there is some reason for the contrary, an effort was made to ascertain this reason by a co-ordination of the clinical history of the mother with the *post-mortem* findings in the foetus, with the result that in every case except two some cause for the premature onset of labour was discovered, the chief causes being, in order of frequency, syphilis 28, twins 16, induction of labour 12, albuminuria and eclampsia 11, placenta praevia 8.

Causes of Death in the Premature Infant.

In the 56 cases of neo-natal death among premature infants the causes were as follows:

Cerebral haemorrhage	22
Syphilis	12
Syphilis with catarrhal pneumonia	6
Catarrhal pneumonia	5
Septic peritonitis	2
Septic meningitis	1
Suprarenal haemorrhage	1
Omphalorrhagia	1
Moist gangrene of foot	1
Asphyxia (gasped a few times)	1
No cause found	4
	56

With regard to the 4 cases in which no cause for death was discovered, it can only be supposed that the infant had

insufficient vitality to maintain life, or that fatal cooling of the body had occurred through insufficient development of the heat-regulating mechanism. Examination of the causes of premature birth reveals the fact that the latter is, in a large percentage of cases, unpreventable as far as present knowledge goes. Thus the only preventable cases are those of syphilis and albuminuria, including eclampsia, comprising 39 cases, or about three-fifths of the entire number, and these might have been prevented by antenatal care.

An examination of the causes of death among premature infants, on the other hand, reveals the fact that most might have been prevented, (1) by proper supervision and treatment of the mother during pregnancy, (2) by the adoption of certain precautions to prevent injury to the foetus during birth, and (3) by improved care of the infant during the first month of post-natal life. This improved care can only be obtained by the provision of specially fitted rooms or *couveuses*, on the Continental principle, in which the child's body heat can be maintained until such time as its own heat-regulating mechanism is properly developed, and in which the necessary measures can be taken to guard against infections that are such a serious and constant menace to the life of the premature infant.

IX. Scopolamine-Morphine Narcosis.

There were three cases in which the cause of death would seem to have been twilight sleep—at least, asphyxia and other known causes of death were excluded. All three occurred in primiparae, and in all repeated doses of morphine had been given four-hourly, and hyoscine hourly. In all cases the thymus was much enlarged, but was specially so in two, in which it weighed 30 grams and 24 grams respectively, the normal being 10 grams. It seems more than a coincidence that these two thymuses should be the two largest I have met with in 350 necropsies on infants. Instances of increased susceptibility to the action of morphine are not infrequent in the case of infants and young children, and it does not seem unreasonable to suppose that a like idiosyncrasy may exist in the unborn foetus, or that the maternal metabolism in certain cases is slower than in others, thus allowing more of the toxin to pass over into the foetal circulation.

X. Miscellaneous.

There were a few cases in which the cause of death fell into none of the above-mentioned classes. They may be tabulated as follows:

Septic peritonitis from cord infection	2
Septic meningitis	1
Omphalorrhagia	1
Neo-natal asphyxia	3
Encephalocele with malformation of the heart	1
Anencephaly	2
Double congenital hydronephrosis	1
Ruptured liver	1
Large thymus (status lymphaticus)	1
Deformed chest and rudimentary lungs ...	1

(The case of double congenital hydronephrosis has been reported by Dr. R. W. Johnstone and the writer in the *Transactions of the Edinburgh Obstetrical Society* 1920–21.)

Necessity of Expert Supervision of Pregnancy.

In conclusion, the great fact that emerges from this investigation is that a very large percentage of the stillbirths and neo-natal deaths could have been avoided by adequate antenatal supervision. Especially is this the case in deaths from craniotomy, asphyxia, and in cerebral haemorrhage occurring in breech and in difficult forceps deliveries. Only about 3 per cent. of the 200 cases had undergone adequate antenatal supervision.

Arguments directed against the preservation of the lives of the unfit certainly do not apply in these cases, for the child that is lost in birth from these causes is generally very large and well nourished, and it is usually just because of this large size that stillbirth occurs. Thus, in the cases of craniotomy the average weight of the child without a large part of the brain was 3,180 grams; of the cases of asphyxia in full-time foetuses the average weight was 3,480 grams—the largest weighed 6,160 grams—and of the fatal cases of cerebral haemorrhage in full-time infants the average weight was 3,460 grams.

Nor do such arguments apply even in the case of syphilis. If we were certain that every syphilitic infant would be born dead it might reasonably be contended that such was the best possible solution of the problem; and if we were sure that every infant born with congenital syphilis would, if untreated, die, to allow it to do so might be the best course to adopt, both in the interest of itself and of the race as a whole. Fortunately, or unfortunately, however, we cannot be certain that such a termination will occur, either of the pregnancy of the syphilitic woman or of the life of the congenitally syphilitic infant. The latter may, even if untreated, live to bear in its body the major portion of the punishment of the sins of its parents, and therefore the only justifiable course to adopt is the early and adequate treatment of the expectant syphilitic mother, especially as such apparently excellent results in the case of the child are now being obtained with modern methods.

The ideal is antenatal supervision and care of every unborn infant by the compulsory, or preferably by the voluntary, notification of the pregnancy of every expectant mother. Parents of children of school age may be compelled to have remediable physical defects in those children treated. It would seem that such compulsory care of the child may begin too late if only undertaken after birth. Such conditions as mental backwardness due to small non-lethal cerebral haemorrhages or tentorial tears occurring during birth cannot be remedied in the child of school age. They could and should have been prevented. In short, it seems illogical that expectant parents should be allowed to risk the life of their unborn child with impunity, whilst the failure to provide even for its physical comforts after birth renders them liable, and rightly so, to the condemnation of the law and of public opinion.

I wish to express thanks to the head of the antenatal department and to the staff of the Royal Maternity Hospital for their cordial co-operation in this investigation; also to Professor Lorrain Smith for allowing the pathological part of the investigation to be carried out in his department in the Royal Infirmary, as well as for much invaluable advice upon difficult matters connected therewith.

THE PSYCHOLOGIST IN PUBLIC LIFE.

Being the Presidential Address delivered to the Metropolitan Counties Branch of the British Medical Association.

BY

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Experience in the great war has created, I think, a greater revolution in psychology than in any other science. That experience has, indeed, proved, as nothing else probably could, the enormous advances in surgery and in preventive medicine, but for this demonstration we were prepared. In psychology the effect of the war has been to establish a new view-point, to compel a new outlook. For some years before 1914 pioneers had been indicating new regions for exploration and marking out new roads; but either, as in the case of McDougall, those who followed the pioneer, in spite of the invaluable nature of his work, were disappointingly few, or, as in the case of Freud, the explorer himself, after brilliantly showing the new way, wandered slightly astray into a not very savoury swamp lying by the path. The great war has afforded abundant opportunities for the investigation of cerebral physiology and pathology and of the psychoneuroses, and the work of such investigators as Head and Rivers has directed us more and more to the new regions and has confirmed the fundamental truth of the teachings of the pioneers. Psychology has become not merely the science of mind, mainly concerned with the analysis of consciousness by the method of introspection, but the science of behaviour, whose subject matter is conduct in general and whose conclusions are based on wider observations and experiment than was formerly considered unquestionably legitimate. More and more the human mind is being studied in its biological and its social connexions. New conceptions have arisen of its evolutionary history and its driving forces as

well as of the possibility of a group mind transcending that of the individual. It is recognized that mind has a much wider content than that of consciousness, that human conduct is determined largely by a number of innate powerful instincts, and that no individual mind can be considered as existing apart from the social and environmental reactions which form it and make it what it is. The mind of a human baby should be thought of no longer as a blank tablet on which experience may write what it will, but rather as a network of strong threads already formed by countless generations, on which the effect of experience will be merely to make some regions more closely woven or to connect some parts with new strands. The foundations of human conduct are not reason and intelligence, but a number of pre-formed psycho-physical dispositions. These instincts may be placed in three groups—those relating to self-preservation, including those concerned with response to hunger and to danger; those relating to species preservation, including those connected with sex and with parenthood; those relating to the life of the herd, with their threefold aspect of intuition or suggestion, of sympathy, and of imitation. Intelligence and reason are but the workmen—relatively newly engaged—who on these foundations, and with the materials afforded by them and by the manifold experiences of life, build up human personalities and those combinations of human personalities which form groups, or societies, or nations. This does not belittle the importance of these higher mental faculties, for it is precisely their increasing development and use in this way which differentiates human mentality from that of lower animals.

Psychology, then, has emerged from those somewhat arid regions in which it formerly worked almost exclusively, and has brought itself into a more intimate relationship with the life both of the individual and of the race. The psychologist is a worker who can predict for us human activity with reasonable certainty, and can formulate laws and principles whereby man's actions can be controlled by organized society. Much of his abundant material, gathered from the whole of mental life, past and present, normal and abnormal, is not yet scientifically developed, so that there is still too much room for the unscientific amateur, the metaphysician, the quack, and the charlatan to pretend and to deceive. The credentials and training of anyone claiming to be a psychologist may well be inquired into; the rigid scientific method should always be insisted on; and, in this as in other sciences, the degree of advance and reliability of the science may be judged by the use which is made of careful experiments and of accurate measurement whenever such methods are applicable. Fortunately in several branches of psychology these methods are applied.

In the attempt to secure a harmonious adaptation of man's conduct to organized society, or of human societies to one another or to the whole of which they form a part, two methods are adopted—training and control. They are not mutually exclusive, for, of course, control is one of the necessities of training, and training in many cases and in some ways goes on through the greater part of life. But, broadly speaking, to train the immature from the earliest possible moment up to maturity in that mental attitude and line of conduct which will best suit the society in which the mature life has to be spent is the most effectual method of securing suitable social behaviour, and is a method which can be distinguished from control of the adult individual or more developed group. Such control may be necessary either to restrain antisocial conduct or to ensure the highest usefulness of the services which the individual or the group can render. What is the place of the psychologist in this training and control? In order to give them their most effective direction it is desirable to gauge as accurately as possible four things. We require (1) a measurement of *attainment;* (2) a measurement of *intelligence;* (3) a measurement of *aptitude;* (4) a measurement of *character.* This is not the logical order, or the biological order, but merely the order in which, as a matter of practice, the attempt at measurement has been made.

We are none of us strangers to the attempt to measure scholastic attainment by means of competitive examination. It is not a perfect method, but in the hands of skilful and conscientious examiners it may be a fairly accurate test of the degree in which the examinee possesses that something less than real knowledge and something more than mere information which it is desirable that he should be proved to have. It is by no means necessary for such a test to be conducted by a trained psychologist, and, although it is eminently desirable that all teachers and examiners should have a sufficient knowledge of psychology, we may still leave to the teaching profession, as such, the measurement of scholastic attainment.

No doubt the competitive examination may serve also in some degree as a rough measure of intelligence as well as of attainment. It will at least enable us to separate the very intelligent from the very unintelligent; but beyond this the method cannot be trusted overmuch. A public examination, too, merely measures the individuals of a group against one another; it does not enable any comparison to be made with other groups or other individuals by reference to a standard scale. This is the real difficulty of the measurement of intelligence. It is not the test that is so difficult, but the evaluation of the result, the giving to it a score on a graduated scale, which, allowing only a small margin of error, would be the same in the hands of any skilled tester. Mental tests are old, mental measurement is new, and it is well known that it was Binet who discovered the scale. He did not merely bring together a number of heterogeneous tests by which he could detect feeble-mindedness; he devised a scale by which intelligence could be measured. It proved not to be a perfect scale, and Binet himself revised his series of tests three times. Others have continued the work since his death in 1913, and now, in what is generally known as the Stanford revision, we have what I think may be regarded as a final arrangement on Binet's lines. It was made by Terman, Professor of Education in the Stanford University in America, and is described in his book entitled *The Measurement of Intelligence* (Harrap, 1919). These tests are individual, and the average time taken for each case is at least half an hour. In the examination of the recruits for the American army a valuable addition was made. Group tests were devised which could be applied simultaneously to large numbers of men with reasonably accurate results. A still later addition has been made by Mr. Cyril Burt in the shape of simple but carefully graduated reasoning tests. All these tests are arranged in series corresponding to the normal intelligence of each year of age from 3 to 14, with others beyond this which are called by Terman "average adult" and "superior adult." The method of application and of marking is very carefully arranged, so that we can get an "intelligence quotient" for each person, found by dividing the real age by the mental age as revealed by the test.

It must be borne in mind that what we set out to measure in these ways is general intelligence only. Special ability in a particular direction may incidentally be discovered, but, in spite of the fact that some eminent specialists may be distinctly lacking in common sense, it is true that high relative ability in one direction is usually accompanied by high ability in others. Certain abilities may be encouraged and others neglected, and some specific abilities may be present in a much larger degree than others, but we are forced to assume general intelligence as a common factor. It is an inborn capacity which probably cannot be cultivated. The only things to be done with it are to measure it and to use it to its full extent. If it is not there the only thing to do is to be sorry for and to protect the deficient being. An ancient writer has told us, "Though thou shouldest bray a fool in a mortar among wheat, with a pestle, yet will not his foolishness depart from him," and the modern law directs us to discover the idiot, the imbecile, the feeble-minded person, to separate the educable from the non-educable, to deal in special fashion with those who are educable until their limit of educability is reached, and afterwards to supervise them in various degrees. If it be true that not far short of 2 per cent. of children are mentally defective in this sense; that from 30 per cent. to 50 per cent. at least of the inmates of reformatories and rescue homes, and a large proportion of those in workhouses, prisons, and inebriate homes are mentally defective; that such persons are almost certain to hand on their defect to their offspring; and that their fecundity is not far from double that of the normal population, the gravity of the social problem is evident, and the importance of dealing with it scientifically in its earliest stages needs no proof. The detailed investigations

into the history of the members of certain families—the Kallikak family, the Nam family, the Jukes, and others—bring home to us the possibilities in a most alarming fashion. Economically the results are almost equally disastrous. The last-named family alone is said to have cost directly the New York State 1,300,000 dollars in seventy-five years, and its indirect cost in disease and social influence must have been enormous. More than one-tenth of the educational expenditure of the United States is said to be devoted to reteaching children what they have already been taught but failed to learn. It is not necessary to emphasize the public importance of the functions of the psychologist in investigating such a problem as this, and in discovering accurately those children who ought to be specially cared for.

The psychologist is needed also to supervise this special educational work. The establishment of special classes, into which all kinds of troublesome material are shot as mental rubbish, is a blunder. Differential diagnosis and classification are as important here as anywhere.

There are at least two other ways in which the scientific measurement of intelligence by a psychologist is of great value in the schools. Grant-aided secondary schools in this country are required to take 25 per cent. of their pupils each year as free-place scholars from the elementary schools. The examination of the applicants for these free places presents some difficulty if those are to be selected whose further education will be of the greatest individual and national advantage. If 50 scholars are required out of, say, 150 applicants it will usually be found quite easy by the ordinary examination and teachers' reports to select the first 30 or so and to exclude definitely about one-half of the total number. It is the relative intelligence of the remaining candidates that we require to know much more than their present level of scholastic attainment, and on several occasions within my own experience the strict application of psychological tests has enabled us to resolve the contradictions between teachers' opinions and varying examination results.*

Again, in all classes of all kinds of school the picking out of children of superior ability for attention and advancement is most important, not only for the pupils themselves, but for the future welfare of the country. Such children are often misunderstood at school, and their teachers, for several reasons which are not unnatural, very frequently fail to recognize the superior intelligence which they possess, or at any rate to point them out as requiring speedy promotion; or, still better, special grouping with others of like ability for more rapid systematic progress.

These points are together of such importance that I believe the time is not far distant when every education authority will find it necessary to have the services of a skilled psychologist to devote himself to this work. The teacher and the school medical officer should each of them have sufficient knowledge of the problems involved and of the methods of dealing with them, but they have too many things to do to become experts in a subject which requires special qualities and the practice of which entails a large expenditure of time. The psychologist need not be a medical man at all, but there are advantages in his being one, for conditions of physical disease may easily complicate and require to be distinguished from the defect of intelligence which is being observed. It is obvious that all three officers concerned must work together in the interest of the child and of the study. Given such co-operation, and in skilled hands, I believe that the exact diagnosis of the degree of intellectual health may now be made with no greater margin of error than is found in regard to physical condition.

Success with the exact measurement of aptitude, though considerable, has not been so ample as with the measurement of intelligence. Many of the tests, indeed, used in vocational psychology are not strictly mental at all, but are really physical or physiological. These tests—such as those for steadiness of hand, accuracy of movement, rapidity of reaction, quick recognition of size and shape—lend themselves to exact measurement. But even when we have added to them the tests for general intelligence we still have other factors, such as persistence and instinctive interest, which cannot as yet be so accurately measured. Fortunately the practical circumstances for which these vocational tests are useful do not necessitate such exact measures as the educational conditions in which intelligence tests are most commonly employed. It is obviously important that a youth in whom the herd instinct is dominant should not be put to work in a lighthouse or to farming in a new colony, or that one in whom acquisitiveness is markedly deficient should not enter on a business career, but in such cases all that is necessary is the broad diagnosis of strength or weakness in the various instinctive qualities rather than the exact estimation of their amount. Nevertheless, even in these directions, tests of fair accuracy are being devised and applied. Already salesmen, street-car drivers, and others have been chosen by the industrial psychologist for appointment; but the most considerable successes of vocational psychology may be said to lie, first, in distinguishing the low-grade worker from those of a more intelligent type; secondly, in fitting low-grade workers into those positions in the industrial machine most suitable in each case for such mechanical aptitudes as they possess. Mr. F. W. Taylor was the initiator of industrial selection on these psychological lines; and though it is to be hoped that the majority of factory workers in this country do possess intellectual energy and instinct fitting them for something higher than this both in industry and in life, yet undoubtedly there are many who may be placed in the complete Taylorist organization just as semi-automatic attachments to a machine. Even for these it is something to be able to choose the right kind of machine; and the elaboration of new tests may yet eventually enable the psychologist to fit the worker of high mental qualities into positions which suit his particular aptitudes, and which will therefore bring most satisfaction to the worker himself and the greatest benefit to the public weal.

Clearly, the higher we get up in the vocational scale the more the measurement required becomes one not of mere aptitude but of character. In the investigation of intelligence, of aptitude, and of character, it is alike true that the qualitative and quantitative examination cannot be entirely separate; but whereas in the case of intelligence we direct our observations primarily to the degree of mentality, so in the case of character we direct them primarily to the quality. Nevertheless, in the latter case as in the former, a large portion of the work is concerned with detecting and assessing defects. Though the measuring of defects of character by more or less exact laboratory or experimental methods has not advanced to nearly the same degree as the measurement of defects of intelligence, and probably never will advance so far, yet there are already a considerable number of mental tests which in skilled hands have proved of great value in discovering and gauging such defects. On the whole, however, the best guide for the diagnosis of temperamental deficiency, or for an inquiry into the basis of abnormal conduct indicating moral defect, must be expert judgement and methodical skilled observation. Such observation will be directed towards the inherited instincts and emotions, and to the acquired sentiments and complexes, to the discovery as to whether these are repressed or unrepressed, as to whether they are properly co-ordinated and controlled, and as to whether they are grouped round some dominating passion or aim. Such analyses of character are necessarily elaborate, and can be satisfactorily conducted only by psychologists of proper training and skill.

Such a measurement of character, as well as of intelligence, is eminently required (1) for the discovery of the so-called "moral imbecile"; (2) for the appropriate dealing with juvenile or first offenders. The official definition of moral imbeciles is "persons who from an early age display some permanent mental defect, coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect." They present the most difficult problem to the lawyer, the doctor, the teacher, and the social worker. Mercier has described them as "clever fools," but the emphasis should be on the noun rather than on the adjective, for although they have a certain superficial ability in adapting their acts to the requirements of the moment they are perpetually bungling their offences and perpetually being caught. Dr. Tredgold describes their basic mental defects as two: (1) they are lacking in the higher faculty of control or wisdom; (2) they have no conception of any social obligation. The official definition requires that these

* An interesting report on the selection of children for higher education at Hamburg on these lines will be found in the *British Journal of Psychology* (General Section) for January, 1921.

defects should (1) have existed from an early age; (2) be apparently permanent; (3) be uninfluenced by punishment. The great social and public importance of detecting such persons before the law gets hold of them requires no demonstration. The school psychologist will be able to find them early in life; and to enable them to deal properly with the cases that came before them—especially with the weaklings who were either moral imbeciles or feeble-minded persons of the more ordinary type—the Birmingham justices appointed Dr. Potts as their psychological expert. "The essential feature of the Birmingham scheme," says Dr. Potts, "is that every prisoner in whose case there is any possibility of such an explanation, or who in any other way is unlikely to be benefited by imprisonment or fine, should be examined by an expert medical investigator either before or after conviction, but in any case before sentence is passed. The report of this investigation is taken into consideration before sentence. In a number of cases the prisoner is placed on probation and the treatment suggested by the investigator made a condition of the probation." Such a scheme should be taken as a model for the administration of justice all over the country.

Juvenile or first delinquents are not necessarily or always of these types of mental defect. There are genuine as well as spurious cases of discharged soldiers suffering from so-called "shell shock" or some form of psychoneurosis which leads to abnormal conduct calling for magisterial attention, and there are other, or the same, forms of mental conflict arising in civilian life which may have similar results. For an example, there is the classical case of the young lady of Bicester. Perhaps you remember it:

> There was a young lady of Bicester;
> One day, when her lover had kissed her,
> She felt so perplexed
> That, to show she was vexed,
> She gave a great slap to her sister.

History does not record for us whether this case came before the local bench of justices of the peace, but it cannot be doubted that they would deal differently with it if they regarded it as a purely wanton attack upon an unoffending near relation than if they regarded it as an almost natural result of the conflict between the sex instinct and the effects of a severely puritanical upbringing.

No scientific inquiry into the real cause of delinquency or crime can be conducted in court. To quote Dr. Potts again: "One often hears magistrates asking a prisoner what is the reason of his going wrong; in a public court it is very unlikely that the prisoner will state what is the cause, even if he realizes it himself. In the majority of cases the cause can only be elicited after long and careful examination and a private interview. The springs of conduct are in the unconscious mind, and therefore often unsuspected by the individual himself; their discovery requires experience in mental analysis." The habitual criminal always starts at an early age, not later than 15 to 20 years. A woman who is not a prostitute by the time she is 20 rarely becomes one. There is something seriously wrong with a method of dealing with crime and delinquency which has failed to stay the development of habitual offenders. The law punishes, largely on a vindictive plan, the particular offence for which the prisoner is charged, and rarely or never concerns itself with its basal causes in the nature or the nurture of the individual. The psychologist—and here, I think, the medical psychologist—is necessary to reform and to complete the legal procedure, and also to supervise a form of punishment which shall be not only a discipline but a training.

We can go further even than this. In the cases just considered an offence has been committed. Life has already applied a test at which the individual has failed. If the skilled investigation were carried out while the delinquency was yet only potential the stigma of guilt and arrest might be avoided and the community would gain by the prevention of criminal acts. Such potential delinquents come to the notice of the medical profession in various ways, but too few medical men are scientific psychologists, and it would be a great public advantage if there were sufficient psychological clinics to which might be referred, amongst other cases, those borderline cases of deficiency or instability of mind and character in which expert early attention would prevent the crime, and perhaps cure the patient.

I imagine that to estimate the varieties of excellence of character, and to investigate the causes of super-excellence, may be of at least equal national or public importance as to detect or to measure its defects. In many directions this need is felt, but it is never adequately met. We have all of us had both to seek and to give those unsatisfactory documents known as testimonials or as certificates of moral character. It is, of course, to be remembered that all such documents have to be used with reference as much to what they omit as to what they say, but they are really of no value at all without a considerable knowledge of the persons who have written them, and sometimes they reveal the character of the giver as much as that of the holder. How much more valuable would be the report of a scientific investigation by a skilled psychologist standardized by reference to a recognized scale, especially if such a report were universally required for entrance into any of the professions or for the holding of any position of responsibility and trust! I am not suggesting that the proficiency of the psychologist in this direction has yet reached such a degree of scientific precision as would justify this; nor is it possible to ignore the enormous practical difficulties that would present themselves in application. But, seriously, it is quite possible that what is now true of the measurement of intelligence may some day be true of the measurement of character, and then the exact method would be preferable to the haphazard and the omission of certain important bodies of public persons from these tests would be unjustifiable. There is no test at present either for a member of Parliament or of the Government, minor or major. It is true that the test would not have to be a severe one, for we have to find more than 700 of them; but, if imposed, what might it not save us from! It is perhaps as well that we should occasionally be forcibly reminded—as we have been lately—of the calibre of the intelligence with which we are ruled, if only to make us think of the psychologist as our possible future protector.

Public problems, as well as public persons, require his attention. There are really very few public questions which do not contain a psychological element worthy of useful consideration. Here it is the mind of the group rather than of the individual that has to be studied and weighed. The conclusions of the older economists were largely vitiated because they neglected to take human psychology into proper account; and the conclusions of politicians, and even of statesmen, have often been proved to be radically at fault for the same reason. It is almost a truism to say that if the leaders of the nations before and during the great war had known how to read and to gauge more clearly and certainly the national mind of their opponents there would have been no war at all, or it would have ended much sooner. Many an industrial dispute, too, would have been avoided or have taken a different course if its psychological aspect had been studied as closely as its economic. Psychology, indeed, lies at the root of all the social sciences.

The stage of evolution at which mankind has now arrived is one in which the individual is seeking a closer and more stable adjustment to the human society of which he is a part, and in which such societies are seeking a closer and more stable adjustment to one another. The adjustments required are mainly adjustments of mind. Biological progress has become predominantly psychological in character. We need to recognize that the psychologist has become a person of paramount importance in our social and public life. Properly to train the child so that his adjustment shall be easy and as far as possible automatic; appropriately to restrain the adolescent so that his antisocial actions shall be controlled and his liability to antisocial behaviour lessened; wisely to direct adult activities so that specific abilities may be of the greatest use to the community, are functions which without the psychologist cannot be performed. Without his aid no statesman can safely attempt to reconcile the interests of different classes or to reorganize international relationships. A closer knowledge of the collective mind of the medical profession (not its opinions on a particular subject so much as its general characteristics) would smooth the path of many a Minister of Health. Psychology as an abstract science and as an applied art is becoming more and more a matter of intimate concern

to every one of us; the status of its student, its research worker, its practitioner will become more and more acknowledged.

America is wiser than the rest of the world in this.. The first thing she did on entering the war was to mobilize her psychologists. It was they who sifted the recruits so that instead of the 50,000 cases for which previous experience showed provision should be made in military prisons there never were so many as 5,000. They graded the accepted men, so that those best suited for commissioned work, for non-commissioned work, for special work of various kinds, were pointed out. They arranged the units so that the men of more than average intelligence were appropriately distributed to leaven the whole, and so that the men of technical ability and skill were not improperly risked. In preparation for the industrial competition of the near future America is pursuing the same methods. The methods are not perfect, but they are being improved. The tests are themselves constantly being tested and the skill of the psychologist increased. A suitable use of the psychologist in the public life of this country so that at certain stages of his career each citizen would submit himself to a test of health, of intelligence, of temperament or character, would result in a gain in industrial efficiency, in economic advantage, and in spiritual outlook which would be incalculable. We have learnt to apply the truths of natural science: it is time that psychological truths should be applied with the same courage and conviction.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

MALAYA BRANCH.

A MEETING of the Malaya branch of the British Medical Association was held in the Singapore Garden Club on April 21st, 1921.

Relation of Ankylostomiasis to Malaria.

Dr. D. BRIDGES of Ipoh read a paper on the relation of ankylostomiasis to malarial fever in the hospitals of the Federated Malay States. He said that the part played by ankylostomiasis in relation to other diseases did not appear to be generally taken notice of, but this relation was an important factor and a real danger. For the last ten years he had been devoting attention to this question; he hoped to show the relation of ankylostomiasis to malaria.

The returns showed that malarial fever in the Federated Malay States was as bad, if not worse, than it was five years prevously; the death rate had risen from 31 to 51.5 per 1,000, in spite of various antimalarial measures which had cost a lot of money, though it must be admitted that these measures had been, in many instances, far from thorough. The ankylostomiasis cases had undoubtedly increased in number. The following figures —taken from about 2,000 patients as they were admitted to one hospital (Kuala Kangsar), regardless of their complaint—showed a general increase.

Ankylostoma Ova Present in Faeces.

	1908-9.	1917-13.
	Per cent.	Per cent.
Chinese	58	80
Tamils	73	92
Malay and Javanese	21	43

Since the first figures were taken the district had been "opened up" a great deal, and on account of rubber the natives could now afford to spend a good lot of their time in towns or travelling about, and did not keep to their compounds as they used to. The hospital returns did not help in any way; all that could be gathered from them was that about 3,000 cases were diagnosed as ankylostomiasis annually in the Government hospitals of the Federated Malay States. This was accounted for by the fact that a great many cases of obvious ankylostomiasis come into hospital for some other complaint, especially malaria or bowel trouble, and were diagnosed as such; this statement is upheld by his figures, which showed that 75 per cent. of cases admitted for malaria are also cases of ankylostomiasis, and were not merely harbouring ankylostoma. The same might be said also with regard to bowel complaints, especially amoebic dysentery.

It was known that (*a*) healthy tissues could resist a certain amount of parasites; (*b*) the virulence of an organism was modified by the condition of the patient into whose tissues it was introduced; (*c*) the opsonic index of the blood was lowered in disease; (*d*) in a mixed infection the virulence of the more active organism was increased, and the resulting disease was more severe, with one or two exceptions. Cases having ankylostomiasis nearly all suffered from loss of vitality; there was a general slackness both organically and physically, which increased as the case progressed, and in addition anaemia was more or less marked. The cause of all these was probably a toxin secreted by the ankylostome worm. It was easy to understand that a man in this state of health was a good field for other parasites, such as that of malaria. Not only was he more liable to infection, on account of loss of vitality, but the resulting disease was more severe, this increased severity being again increased by the difficulty of treating malaria in ankylostomiasis cases. This accounted, no doubt, for the large malaria death rate.

From the above observation it was reasonable to argue that as 75 per cent. of the malaria cases were also ankylostomiasis cases, there might have been 75 per cent. less deaths from malaria had ankylostomiasis been absent. We might go further and suggest that the ankylostome worm was as much responsible for malaria fever as the mosquito.

The difficulties of treating these complicated cases were: (1) Quinine could not be given in large or continuous doses without the risk of ill effects such as further complications from the heart, kidneys, eyes, or stomach; (2) these cases did not react to quinine treatment as well as uncomplicated cases did; (3) quinine, if given in addition to ankylostomiasis treatment such as beta-naphthol, often caused severe collapse.

As regards measures that might be taken to treat ankylostomiasis Dr. Bridges suggested the following: (1) That every Tamil coolie who arrived at the dépôt should be treated twice before he was sent to his estate, either before he left India or after his arrival in this country. (2) That this treatment should be properly given by qualified medical men; eight days would be sufficient time in the majority of cases. (3) That as 90 per cent. or more of estate coolies were infected they should be treated on the estates in batches of twenty or fifty according to the labour force; sheds might have to be put up and the treatment should be given under medical supervision. (4) That instead of ordinary latrines as now were put up on estates and which are not used by the coolies, cement drains, with a good flow leading into a pit, should be used—the coolies could squat over these and they would use them; these drains could be swilled with strong disinfectants twice daily. (5) That a severe fine be inflicted should the Health Office or inspectors discover any faeces about the coolie lines. (6) Sand should be spread around all coolie lines, say a distance of twenty yards, and renewed from time to time. This would enable coolies to have more or less clean feet after returning to their lines.

As regards treatment he had tried many drugs and methods of administering them. The best results were got from beta-naphthol and oil of chenopodium, provided a preliminary dose of salt was given to dissolve and cleanse the duodenum of mucus.

(1) At 6 a.m., sodium bicarbonate and sodium sulphate, of each 1 drachm in 1 oz. solution; at 7, 7.30, and 8 a.m., beta-naphthol gr. 10, in emulsion or capsules, and one mouthful of milk. At 9 a.m. a good purgative. The patient was kept on reduced diet the day before, and on the day of treatment. He was kept lying quite still during treatment.

(2) At 6 a.m. a dose of sodium bicarbonate and sodium sulphate, 1 drachm of each. At 7 a.m., oil of chenopodium 2 c.cm., castor oil 1 oz., with the same precautions as in the first administration.

Dr. D. J. GALLOWAY, who presided over the meeting, opened a discussion on the paper, in which Dr. HOOPS, Dr. GIBBS, Dr. DAWSON, and Dr. VAN DORT joined.

THE SECTIONS.

BRIEF SUMMARY OF PROCEEDINGS.

ARRANGEMENTS have been made to publish full reports of the discussions in the Sections of the Annual Meeting at Newcastle-upon-Tyne during the next few months. Meanwhile, the brief notes of the first day's sessions which follow will enable those who were not present to gain a general view of the proceedings. Any errors to which attention may be drawn will be corrected in the full reports.

SECTION OF MEDICINE.

VISCERAL SYPHILIS.

THE first session was devoted to a discussion on visceral syphilis, especially of the central nervous system and cardio-vascular system. In his opening remarks the President, Professor Thomas Beattie, recalled that when the last discussion of this subject by the Association took place in 1893, owing to the fact that syphilis was then largely an untreated disease, aneurysm, general paralysis and myelitis were much more frequently seen than at the present time; he prophesied that owing to the earlier recognition and efficient treatment nowadays, fewer and fewer cases of visceral syphilis will be met with in the future.

Sir Clifford Allbutt began by discussing the histology of syphilis, insisting on the importance of vascular changes, even in the primary sore, and their similarity in primary and tertiary lesions. He emphasized the rapidity of generalization of the virus by way of the lymphatics; a syphilitic septicaemia was soon set up associated with fever, rashes, anaemia and leucopenia; some of the rapid deaths reported in syphilis after salvarsan might be due in reality to syphilitic rather than arsenical poisoning. The disease as it attacked the vessels began in the adventitia and involved the intima, where it might spread upwards or downwards. In 70 per cent. of cases of syphilis the aorta showed histological evidence of infection, and it might be at a very early stage. Angina pectoris might be an early symptom. In the ventricles syphilitic disease was not common, but there might be an atrophic fibrosis as the result of coronary disease. In the lungs fibrosis and bronchiectasis might result. Bronchitis after syphilis should be carefully watched. The alimentary canal below the oesophagus escaped as far as the rectum. Gumma of the kidney was rare. Was there a definite syphilitic nephritis? The central nervous system might be infected very early, often in those cases with little "secondary" manifestation. A periarteritis was essential; the Wassermann reaction might be positive in the cerebro-spinal fluid and negative in the blood, and a positive test might be found in the absence of nervous symptoms. Lumbar puncture should be performed at every stage, and if necessary treatment by intraspinal as well as intravenous injection. In general paralysis of the insane the vessels were affected long before any symptoms were manifest. Nervous lesions occurred in about 40 per cent. of the cases of congenital syphilis, the signs being rarely delayed till adolescence. In all diseases of the spinal cord the cerebro-spinal fluid should be examined.

Professor Reynolds (Manchester) discussed the subject from the clinical standpoint. He considered that in any disease which did not run a typical course syphilis should be suspected. The skin and the eye not infrequently showed signs of previous syphilitic disease. In syphilis the lesions were more often multiple than single. The Wassermann reaction was to be regarded as a piece of evidence and not as a verdict, and if doctors were better educated lumbar puncture would not be so often required; a positive Wassermann reaction in the cerebro-spinal fluid did not necessarily mean that the patient's trouble was syphilitic. In syphilitic disease of the nervous system spasticity when it occurred was always very intense. He enumerated the syphilitic affections of the spinal cord.

Dr. John Cowan (Glasgow) stated that syphilitic disease of the pulmonary artery occurred as in the aorta, and in the early stages of syphilis diffuse fibrosis of the myocardium might occur. Lantern slides were shown illustrating fibrosis and gumma of the heart and aortitis. The Wassermann reaction was to be regarded as an aid to diagnosis. He gave a table showing the incidence of syphilis in a series of cases of heart disease. Antisyphilitic treatment was urgently required in vascular syphilis, but too much was not to be expected of it; small doses of salvarsan with long courses of mercury and iodide were preferable to large doses of salvarsan.

Dr. A. G. Gibson (Oxford) stated that in hospital practice some 7 per cent. of the medical cases gave a positive Wassermann reaction. He discussed the diagnosis of aortitis and considered that its treatment by salvarsan in ordinary doses was contraindicated, but that repeated small doses should be given over a long period; some did well on mercury and iodide. Dr. Ivy Mackenzie (Glasgow) had seen two cases of what he believed were true nephritis occurring with the rash. In outdoor treatment of syphilis vascular symptoms were rare, but nervous symptoms were relatively common. He related a case of syphilitic disease of the heart in which death took place in six weeks. Dr. I. Harris (Liverpool) showed electro-cardiograms from two cases of syphilitic myocarditis, one of which showed evidence of interference with the conduction in the right branch of the bundle of His. Potassium iodide in three weeks removed the symptoms and the cardiogram became normal. He considered iodide very effective in localized affections of the myocardium, while mercury was the better in generalized arterial disease.

Dr. John Eason (Edinburgh) discussed the question of syphilitic anaemia. He described cases showing the blood picture of "pernicious anaemia" in a child fourteen months of age, in which the Wassermann reaction was positive, as also in the mother. Three cases with the blood changes of "pernicious anaemia" occurring in the secondary stage of syphilis were mentioned. In the tertiary stage a blood picture like that of "pernicious anaemia" might occur, or Banti's disease with splenic enlargement might be simulated.

Several specimens illustrating the subject under discussion were on view in the pathological museum. In the afternoon clinical demonstrations, which were very well attended, were given by the honorary medical staff in the wards of the Royal Victoria Infirmary.

SECTION OF SURGERY.

ACUTE PLEURAL EMPYEMA.

THE opening meeting of the Section of Surgery was attended by a large and appreciative audience drawn from all classes of the profession. Professor Rutherford Morison was supported in the chair by the officials of the Section. A discussion on acute pleural empyema was opened by Mr. Henry Wade (Edinburgh). His main thesis was that in dealing with this common disease of civil life there was an admirable opportunity of adapting the lessons learned in the war in the various modes of treatment of thoracic and knee-joint injuries. It had been found before the war in civil practice that in acute peritoneal infections the less drainage and the more rapid closure of the cavity, broadly speaking, the better the results. In the thoracic and knee-joint surgery experience had taught them that the same general principles were applicable. He was led to offer as a basis of discussion a series of suggestions in the hope that the results of surgical treatment of acute pleural empyema would improve and methods would become more standardized. A combined cytological and bacteriological examination of the fluid withdrawn should be more widely employed as offering the prospects of affording fuller and more accurate data on which to found operative treatment. Suppuration within the pleural cavity was specially suitable for treatment by methods which obviated the necessity for opening that cavity, or by methods where an immediate or early closure after it had been opened were carried out. He thought that the value of treatment by aspiration alone should again be carefully reviewed, and that consideration should be given to the value of methods introducing antiseptics, such as Murphy's 2 per cent. formalin in glycerin, into the emptied cavity. Aspiration would require to be frequently performed. If simple drainage were practised, the ideal opening was one which both allowed free escape of the pus at the time and permitted ready closure after the tube was withdrawn. The benefits to be derived from a free opening of the pleural cavity by major intercostal

thoracotomy warranted its employment in cases which gave promise of developing into chronic and persistent cases. The value of disinfection and immediate closure in these latter cases should be more fully tested. The Rutherford Morison technique, described in the JOURNAL of October 20th, 1917, employing "bipp," was that recommended by him.

The discussion proved lively and informing, and was taken part in by no fewer than eighteen members of the Section. Naturally, considerable variety of opinion was expressed. The question of employment of drainage tubes bulked largely, and while some speakers, notably Mr. Lucas, Sir William Macewen, Mr. Childe, and Mr. Souttar, condemned their use; others, Mr. Edington, Mr. Cuthbert and Mr. Martin of Cardiff, thought the drainage tube, carefully used and closely watched, had a place in the treatment. All the speakers were agreed that the anaesthesia question was of importance, and if anything a preference was expressed for a local anaesthesia. To promote expansion of the lung the modes most emphasized were free drainage and getting the patient early out of bed. Professor Rutherford Morison regarded the discussion as a most fruitful one, and he thought Mr. Wade's paper a contribution of the highest value and of fundamental importance.

Two short papers filled up the rest of the morning. Sir Hamilton Ballance, in his paper on the best method of operative approach in cases of acute appendicitis, advocated an incision to reach the appendix which would cut the internal oblique and transversalis transversely to the line of their fibres. By this incision the operation area was completely under the eye of the surgeon; if drainage were required the tube was inserted at the lowest angle of the wound; the rest of the wound was sutured in layers. He had not seen any but the most easily dealt with herniae result. These views were directly controverted by Mr. Russell Coombe, who always employed the semilunar line incision, opening the rectus sheath, and by Mr. Souttar and others, who always employed the muscle splitting incision and no other. Mr. G. H. Edington read an analysis of a series of cases of intussusception. He had had a series of thirty-six cases, and the anatomical findings, mode of operation, and results were put before the meeting. Some remarks on the paper were made by Mr. McAdam Eccles, Mr. Childe, Mr. Cooke, and Dr. Greenfield.

SECTION OF NEUROLOGY AND PSYCHIATRY.

BORDERLAND CASES.

THE proceedings of the Section opened with a discussion on the diagnosis and treatment of borderland cases. Professor Ashley Mackintosh (Aberdeen), President of the Section, took the chair, and opened the meeting with a brief speech of welcome to the members.

Professor G. M. Robertson (Edinburgh) opened the discussion. He pointed out the difficulty of drawing a hard-and-fast borderline between cases of neurosis and those which had progressed to definite mental disease, and that in consequence the borderland was really a very extensive domain. He wished to exclude from consideration cases of certifiable insanity, which were definitely over the border. He proceeded to emphasize the importance of the mind and of mental symptoms even in diseases commonly regarded as being of purely physical nature, and reminded his audience of the value of psychotherapy in removing mental symptoms such as pain. He deplored the absence of a psychiatrist from the medical staff of all large general hospitals, and was of opinion also that many neurologists had suffered from lack of training and experience in mental diseases. The type of borderland case which he wished to discuss particularly was that whose chief symptom was mental depression. He strongly emphasized the fact that every melancholic was at one stage or another of this disease a potential suicide, and added that the risk was greatest when the patient was least deranged—that is, in the early stage or in convalescence. Melancholia was the commonest form of psychosis, and the form most often treated outside a mental hospital. He advised every doctor not a psychiatrist to call into consultation, if only for his own sake, some expert in mental disease, when he was responsible for the treatment of a depressed person. Were his audience to forget all that he said with the exception of the one statement that every patient with melancholia was a potential suicide, then his lecture would not have been in vain. He finally entered a plea for the emancipation of the mental hospital. The present Lunacy Acts had, he said, outgrown their usefulness. Patients suffering from curable mental disorders should be able to enter mental hospitals and receive early treatment without being certified as lunatics. Simple notification would provide them with all the legal protection needed.

Dr. Ivy Mackenzie (Glasgow) described the results of treatment in his observation wards, where patients were allowed to remain for six weeks. Out of 1,200 cases in one year 560 had to be certified. With regard to the diagnosis of so-called shell-shock cases, he had come to the conclusion that in Glasgow, at any rate, from 50 to 70 per cent. of these were mental defectives. From an etiological point of view he would classify them into three groups: (1) Toxic, (2) Amnesic, and (3) Defective. Dr. Helen Boyle, after referring to the fact that she saw cases from a somewhat different angle, at a hospital for nervous diseases and not a regular mental hospital, emphasized the amount of unhappiness, domestic and otherwise, in the world, and its bearing on mental diseases. While appreciating the value of psycho-therapy, she insisted on the importance of rest and adequate feeding, especially with reference to the body weight. An educated public opinion, she declared, was one of the greatest desiderata in the problem of treatment.

Dr. Edward Pierce (York) referred to the difficulties of expense in connexion with treatment, and urged that it was right to take risks at times in the interests of the patients themselves, and not to insist on a confinement and attention which was sometimes inimical to the patient's recovery. Dr. A. E. Carver (Birmingham) thought that removal from home surroundings, while necessary in many cases, should be as short as possible, and emphasized the value of work. Dr. Ruxton spoke of the difficulties of the general practitioner in dealing with cases, and said that there should be an institution reserved for the treatment of voluntary cases only. Dr. Mary Sturge (Edgbaston) spoke of the importance of correcting visceral prolapses, and of the value of vaccines in suitable cases. Dr. Middlemass (Newcastle) hoped that rate-supported institutions would accept mental cases as voluntary patients. Dr. Mackie Whyte (Dundee) described the work in connexion with mental cases at the Dundee Infirmary. Dr. Dawson (Inspector of Lunatics, Ireland) referred to the possibility of treating mental cases in the wards of a general hospital. Dr. Harry Campbell (London) and Dr. W. H. Bryce (Fife) also spoke. The President referred to the deplorable frequency with which cases of acute melancholia were labelled as hysteria or neurasthenia. Professor Robertson replied briefly, and concluded an animated and highly successful discussion.

In the afternoon a clinical demonstration of neurological cases was arranged at the Royal Infirmary by Dr. George Hall and Dr. Horsley Drummond, when many cases of great interest were seen.

SECTION OF PATHOLOGY.

AT the opening of the session on Wednesday, July 20th, Professor Matthew Stewart said that they had two important subjects to discuss that morning, and his opening remarks would therefore be brief. He was speaking in the place of Professor Stuart Mackenzie, who was absent owing to sudden bereavement. Professor Stewart then outlined the programme and thanked those who had come forward to help in the discussions.

HAEMOCHROMATOSIS.

Professor Shaw Dunn opened the discussion on haemochromatosis. The term was applied to a peculiar morbid condition, characterized by accumulation of free iron-containing pigment in certain organs or in the skin, associated with interstitial fibrosis of the liver and pancreas and, in certain cases, with the development of glycosuria. The skin appeared greyish-brown and gave the Prussian blue reaction. The liver was often enlarged and of a rusty colour, and there might be ascites. The pancreas and retroperitoneal glands were likewise rusty in appearance and reacted strongly to tests for iron. Many other organs, as for instance the spleen, heart, thyroid, stomach, kidney, and intestines, also contained iron. Histologically the cells contained a brown granular pigment which gave the

Prussian blue reaction. If, however, the test was performed with cold hydrochloric acid some of the pigment gave the deep blue colour, but some gave only a faint blue or greenish colour. The explanation appeared to be that the iron was in a chemically free condition when first deposited but afterwards became more firmly combined, and therefore was accessible to reagents. In the pancreas degeneration of glandular tissue was met with, but pigmentation was not as marked in the islets of Langerhans as in the rest of the gland. There was no evidence that the pigment itself produced degenerative lesions, and in his opinion neither pigmentation nor cirrhosis were primary factors in the disease, but both were due to some unknown cause. In haemochromatosis the liver contained 100 times as much iron as in health, and considerably more than was present in cases of pernicious anaemia with siderosis. Iron was proportionately increased in other organs, but there was no increase in the blood. It would appear that the tissue had an undue affinity for iron. Normally as much iron was excreted as was ingested, but in haemochromatosis iron was retained. None was excreted in the urine and very little in the faeces. There was no excessive breakdown of red cells and the bone marrow was normal. Probably iron was retained during the whole lifetime of the individual.

Dr. Maxwell Telling was unable to attend owing to an accident, but his paper was read by Dr. Shaw. He said the disease occurred from the ages of 30 to 60, and was almost exclusively confined to males. It lasted two or three years, and there was not infrequently an alcoholic history. The patients were curiously listless and apathetic, and the condition in this way resembled Addison's disease. There was progressive cachexia ending in death. As regards the pathology, there was some evidence that haemochromatosis was due to defective iron elimination. It was very doubtful whether irritation by pigment could cause cirrhosis. The fibrosis was sometimes followed by cancerous degeneration. He had collected four such cases. Further investigation would probably show that the disease was not as rare as was thought. Every case of cirrhosis should be examined with a view to finding out whether iron pigment was present.

Dr. Gaskell described the histological changes in a case which he and Dr. Mackenzie Wallis had investigated. He thought that the tissues were avid for iron and seized upon it before it could be excreted. Fibrosis was secondary to the accumulation of pigment. Dr. Mackenzie Wallis said that various forms of pigmentation occurred in diabetes. Not every diabetic with pigment in the skin had haemochromatosis. The question as to whether cirrhosis or pigment was primary needed further study. Dr. Cruikshank described his findings in a recent case not yet fully worked out. Golden-brown pigment was present in many situations, but some did not contain iron. Professor Beattie spoke of a case in which diabetes had been present three years before bronzing. Professor Stewart said that haemochromatosis was not such a rare disease as was thought. Surgeons might be able to diagnose cases by the examination of the abdominal glands when doing a laparotomy. Professor Dunn replied.

THE STREPTOCOCCI.

Professor Beattie confined his remarks to the discussion of haemolytic strains of streptococci. Haemolytic streptococci were found with great frequency in the human throat, especially in the tonsillar crypts (92 per cent. of cases). They remained there usually as saprophytes, but they played an important rôle as secondary invaders in many diseases. They were commonly found in scarlet fever, measles, lobar pneumonia, and influenza, and were a frequent cause of complications. According to Gordon, a haemolytic streptococcus was the organism of scarlet fever. Acute primary invasions by haemolytic streptococci could be rapidly fatal. It was therefore of great importance to recognize the type of organism, and to study methods of destroying it. It was difficult to find a satisfactory basis for classification. Morphological and cultural reactions had no relation to pathogenicity. More recently classifications had been based on haemolytic and immunological reactions, but the technical difficulties to be overcome were great. Success had been attained in the treatment of meningococcal meningitis by serum. Professor Beattie's experiments encouraged the hope that a similar result would be obtained in streptococcal infections. Dr. Warren Crowe proposed to widen the discussion so as to include the non-haemolytic streptococci such as the pneumococci and *S. viridans*. Professor Beattie had stated that rheumatism was caused by streptococci. Those who had experience of the use of vaccines in rheumatism would agree with that statement. Dr. Warren Crowe showed a medium composed of heated blood which would enable streptococci to be differentiated into a large number of types. Dr. Dible said that the problems confronting investigators were numerous and difficult. He suggested that in classification the tests used must be (1) simple, (2) have sharp lines of division, (3) be of definite significance as regards pathogenicity. He divided streptococci into haemolytic and non-haemolytic, with four subgroups in each division. Dr. McLeod described his experiments with haemolytic streptococci grown in undiluted rabbit's serum. Certain strains possessed marked virulence towards rabbits, and retained this characteristic for a very long time. He was sceptical as to the value of specific serums. They did not have any effect on inoculated rabbits, although normal horse serum delayed the fatal result. Dr. Ford Robertson disagreed with the present lines of classification and showed a scheme of classification which he considered satisfactory. Professor Beattie, in reply, said that he distrusted schemes of classification based on one or two characteristics only. The most useful type of classification was one which gave an idea of the pathogenicity of the organism and whether a homologous serum could be used. Experiments to be of any value must be performed with a large number of organisms.

PHYSIOLOGY, PHARMACOLOGY, THERAPEUTICS, AND DIETETICS.

BEFORE commencing the business of the first day's session two eloquent tributes to the memory of the late Professor Menzies were paid by Dr. Dale and Professor A. V. Hill. It was decided that a resolution expressing the deep sense of the loss sustained by medical science should be conveyed to the authorities of the University and to Mrs. Menzies.

In the first of the four papers of the morning Professor A. V. Hill described his new methods of recording the movements of the pulse and of the muscles of man during voluntary contraction. The movements of the pulse and of the muscles are caused to force jets of air on to a very thin spiral of platinum wire, heated by an electric current to a dull redness. The jet of air cools the hot wire, and thereby lowers its electrical resistance. The change of resistance can be recorded by string galvanometer and photographed in several different ways. The advantage of the method is that it records the actual movement of artery or muscle very clearly, with very little time lag and without any extraneous vibrations superimposed by the movements of the different parts of the recording instrument themselves. As Dr. Dale pointed out, this procedure could be easily and cheaply undertaken in any hospital which already possessed an electrocardiograph. Several interesting clinical applications, which we have no space to describe here, were suggested.

Dr. Groves and Mr. Vines next gave a short account of their improved treatment of varicose ulcers. Former measures, such as bandaging and external application of lotions, designed to promote the better nutrition of the tissues affected, they do not consider to strike at the real root of the complaint. This they believe, and furnished good evidence for believing, to be due to a deficiency of the calcium metabolism of the body, which shows itself in a diminution of the ionized calcium of the blood. After various trials of intramuscular injection of calcium chloride, feeding with calcium chloride and parathyroid extract, etc., they decided that parathyroid extract alone was most efficacious—one-tenth of a grain of parathyroid substance given daily for a week to a fortnight, till a maximal effect, as estimated by the increase in ionic calcium of the blood, is produced. When this stage has been reached, the dosage is reduced to twice a week until complete healing has been achieved. A very interesting discussion ranging round the pathological mechanisms at work then took place.

Dr. H. H. Dale gave an admirable paper dealing mainly with the recent work of himself and collaborators on the mechanism of anaphylaxis. Of the two rival theories, the first holds that the reaction between the second dose of

antigen and the antibody takes place in the blood itself. An "anaphylatoxin" is thereby produced and is responsible for all the well known features of anaphylactic shock. The second theory holds that the antibody and antigen actually react in the living cells themselves; that in the anaphylactized animal there is no appreciable antibody present in the blood, while in the immunized animal there is plenty of antibody in the blood, so that in immunity all the antigen combines with antibody in the blood, where combination does no harm. In recent experiments, which will shortly be published, Dale and Kellaway had found no evidence of proteolytic change when guinea-pig serum was made toxic by digestion with starch or agar. On the anaphylatoxin theory such toxic serum should act directly on a guinea-pig's muscle in absence of the blood, while the anaphylactic antigen should act only if blood is present. The opposite is the case. "Anaphylatoxins" act immediately on the blood and produce in it changes indicated by agglutination and disappearance of the platelets which make the blood toxic while they have no action upon isolated plain muscle, which can account for their effect *in vivo*. On the other hand, isolated blood-free plain muscle from an anaphylactic animal is even more sensitive to the antigen than it is in the whole animal. The protective action of the excess of antibody in circulation (immunity) can be demonstrated *in vitro*, and was illustrated by lantern slides.

The last paper, which was read by Professor Potter, was of decidedly a novel kind. He has investigated the electromotive forces developed during enzyme actions; and, indeed, these electromotive forces would seem to be ubiquitous in living phenomena. For instance, the breath is negatively charged with electricity, whereas the body is positively charged therewith. If further work confirms these early findings, it will be most interesting and important, but it does not appear at present that sufficient precautions have been taken to ensure that the observed electromotive forces are not caused by extraneous influences, such as the Newcastle electric power stations.

SECTION OF OPHTHALMOLOGY.

Causes and Prevention of Blindness.

THE President, Professor J. D. Wardale (Newcastle-upon-Tyne) in opening the proceedings, said that he was glad that the exceeding difficulties that faced them when they first contemplated the arrangements for the annual meeting had been overcome, and that they were able to gather in such good numbers to the meeting of this Section.

Mr. N. Bishop Harman (London), in opening the discussion, said we needed a sound knowledge of the causes of blindness, else we could not take effective steps to prevent it. We needed to prevent blindness because of the cruel hardship it entailed upon the blind person, and because a blind person was directly or indirectly a heavy charge upon the resources of the community. He proceeded to give data of the causes of blindness, based upon a collection of 4,288 persons. These came from three sources: (1) A home for blind infants, (2) schools for blind children, (3) private cases of all ages. Reviewing the figures obtained from these sources he showed that the causes of blindness varied greatly according to the age group examined. In infants, ophthalmia neonatorum headed the list, and produced a full half of the blindness. In school children ophthalmia neonatorum fell from first place by the appearance of blindness due to inherited syphilis; so that these two main sources of blindness together accounted for rather more than half the blindness of school children. When blindness amongst persons of all ages was examined there was a great change in the leading causes—senile degenerations, vascular diseases, choroiditis, glaucoma, cataract, and the end-changes of high myopia, took precedence. Examining these leading causes of blindness with a view to their prevention, he urged concentration of attention upon (1) ophthalmia neonatorum, (2) syphilitic diseases, (3) accidents, (4) myopia. Blindness from ophthalmia neonatorum, he showed, was declining, but it would never be extirpated until pre-natal maternal infections were effectively treated. That was a practical proposition. In the treatment of affected infants he urged more expedition. Each area should have a mobile diagnostic unit —a kind of medical "fire brigade"—ready on the instant to visit a suspected case, make a bacteriological examination, and advise on treatment. Then our hospital treatment would be effective, for cases would be seen at the outset. The cure of syphilitic parents would stamp out inherited syphilis and its heavy tale of blindness. Industrial accidents could be reduced by "safety first" arrangements, in which workpeople should have a direct and tangible interest. The extension of myope classes for children with high myopia would spread the knowledge of the risks of these diseases, put the youths into suitable work, and prevent their entering clerical occupations and endangering their frail eyes. The discussion was continued by the president of the Section, Dr. J. Alexander (Glasgow), Mr. E. H. E. Stack (Bristol), Mr. A. S. Percival (Newcastle-upon-Tyne), Dr. Harold Scurfield (Sheffield), Dr. George Foggin (Newcastle-upon-Tyne), Dr. Inglis Pollock (Glasgow), Dr. J. V. Paterson (Edinburgh), Dr. Marion Gilchrist (Glasgow), and Dr. Herbert Caiger (Sheffield); Mr. Bishop Harman replied. The following resolution, moved by Dr. Scurfield, seconded by Mr. Harries Jones (Northampton), was passed unanimously:

> That, with a view to the prevention and adequate treatment of ophthalmia neonatorum occurring in lying-in hospitals, such hospitals should have upon the active staff an ophthalmic surgeon.

Dr. Inglis Pollock read a paper on the advisability of early operation in strabismus convergens, which was discussed by the President, Mr. Harries Jones, Mr. E. Stack, Dr. Caiger, Dr. D. Wilson (Huddersfield), and Dr. E. C. Moore (Gateshead). Dr. Pollock replied.

SECTION OF ORTHOPAEDICS AND DISEASES OF CHILDREN.

Acute Anterior Poliomyelitis.

THE meeting was opened on Wednesday, July 20th, by Mr. Alfred H. Tubby, President of the Section, who welcomed the members and thanked the local medical profession for their efforts in organizing the meeting. He referred to the distinguished foreign visitors who were present, and thanked the Section for electing him to the office of President for a second time.

The discussion on "The early diagnosis and treatment of acute anterior poliomyelitis" was opened by Dr. Farquhar Buzzard. He referred to the importance of the early diagnosis of these cases by the general practitioner, though giving it as his opinion that this was of more importance to the doctor than to the patient. He then elaborated some of the important points in the early diagnosis of the condition. It was only recently that acute poliomyelitis had been recognized as belonging to the class of acute specific fevers, and it was owing to a failure to appreciate this previously that many diagnostic failures had occurred. In the differential diagnosis scurvy, acute epiphysitis, toxic polyneuritis, Landry's paralysis, and encephalitis lethargica were considered. Dr. Farquhar Buzzard gave details of a method of serum diagnosis which had been put forward, though he did not consider that it had proved to be of definite value. He confessed that diagnosis still essentially depended on the clinician. He divided the question of treatment into two definite stages. In the early acute period he advocated a passive line, the most important factor being rest. In the later convalescent period, which could be regarded as commencing at about six weeks from the time of onset, the treatment of individual muscles became important. Posture, massage, and electrical treatment were adapted to this stage.

Mr. R. C. Elmslie followed. He considered that accurate early diagnosis was of the greatest importance, and that in the acute stage the essential feature of the treatment should be complete rest. He did not allow the use of massage or electricity for about six weeks from the onset. He advocated the use of a plaster bed as the best method of securing adequate rest. In the convalescent period he emphasized the value of posture and attempts to aid the restoration of function by means of small active movements through a slight range. Nutrition was best maintained by means of warmth. Mr. McCrae Aitken emphasized some points in relation to the importance of posture in the restoration of function. He agreed in condemning massage and electrical treatment in the early stage. Mr. W. R. Bristow drew attention to the nature and value of electrical treatment in the convalescent period of these

cases. He considered the faradic current alone to be of value; a minimum stimulus should be employed, and splints should not be removed during treatment. He did not consider the electric bath to be of use, but thought an ordinary hot-water bath was useful in maintaining nutrition. Dr. Howard Humphris was of the opinion that the value of electrical treatment in various forms had been underestimated by the previous speakers, and gave details of the methods which he advocated. Dr. Tulloch made some observations from the point of view of the laboratory worker. Dr. Brooker Mills gave some interesting details of epidemics which had occurred in America. He gave some salient examples which disproved most of the theories which had been put forward to explain the method of conveyance of the disease. He gave an outline of the diagnostic points which had proved of value, and discussed the prevention of the spread of the disease during epidemics. Dr. L. A. Parry, Mr. Harry Platt, Mr. A. E. Morison, Dr. G. Parker, and Dr. Mitchell Smith followed.

The President summed up the discussion, and made some observations on his experience of the disease. Dr. Buzzard replied, reaffirming the importance of early rest, and commenting adversely upon the elaborate electrical treatment proposed by Dr. Humphris.

A short paper was contributed by Professor Mark Jansen (Holland) on the polyarticular muscles as the cause of arthrogenetic contractures, and he also made some interesting observations on osteogenesis imperfecta. Mr. H. Platt read a paper on birth palsy.

PREVENTIVE MEDICINE WITH INDUSTRIAL DISEASES.

EFFECTS OF HEALTH LEGISLATION.

THE first meeting of the Section of Preventive Medicine with Industrial Diseases was opened by the President, Sir Thomas Oliver, with a few introductory remarks of welcome, in which he referred to the overcrowding that occurred in Newcastle during the war owing to the influx of munition workers. He then invited Dr. I. G. Modlin (Chairman of the Sunderland Health Committee) to occupy the chair. Dr. Modlin appealed to medical men to take a deeper interest and a more active part in municipal government. He referred to the problems now awaiting solution by local authorities, and expressed doubts as to the benefits resulting from recent schemes in connexion with tuberculosis, maternity and child welfare, and venereal diseases, having regard to the expense involved.

Captain Walter E. Elliot, M.P., opened a discussion on "The effect of health legislation on the health of the people." He said that not only was prevention of enormous value as compared with possibilities of cure, but prevention could only be brought about by the compulsion of some statutory enactment. He gave an outline of the history of public health legislation in England. The enormous increase in population during the nineteenth century compelled the passing of sanitary legislation. We were greatly indebted to the influence of Lord Shaftesbury. The extinction of the great fevers and the reduced infant mortality were largely due to legislation. The death rate had decreased from 37.2 per 1,000 in 1854 to 12.4 in 1920. The expectation of life had greatly increased and the saving occurred during the younger and more active years of life. Public health legislation led to water supplies, washing, killing of lice, disappearance of typhus, and as the water supplies became purer to the decrease in enteric fever. Factory legislation was inspired by laymen, and the resultant benefits could not have been secured by private enterprise. The value of Government action supported by public funds was shown in the marked drop in the deaths from typhus in Poland as the result of organization and compulsion. As regards the outlook for the future, in tuberculosis the number of deaths from the pulmonary form had dropped from 39,000 in 1911 to 33,000 in 1920 after a temporary increase during the war period. This war increase did not occur to the same extent in Scotland, and it was difficult to account for the rise in England. The number of notifications was also falling. It was also a remarkable coincidence that the marked drop in infantile mortality coincided with the grants of money made by Parliament to support organized schemes. In spite, also, of the high percentage of unemployed, the health of the people was not appreciably suffering, and possibly the State dole was in part responsible. As regards the cost of recent schemes for dealing with tuberculosis, maternity and child welfare, and venereal diseases, Captain Elliot stated that in Burnley, Manchester, and elsewhere the cost was under 3d. in the £, or about 2 per cent. of the rates. Dr. Eustace Hill (M.O.H. Durham County) said that legislation must not be too much in advance of public opinion. There was an urgent need for the codification and consolidation of the Acts relating to public health. The present tendency towards piecemeal legislation should be discouraged. Dr. A. E. Cope (District M.O. Westminster) urged the importance of securing public assent and co-operation through education to legislative measures. Dr. Millar (County M.O.H. Radnor) complained of the burden of correspondence, returns, etc., associated with recent health legislation. Dr. Coles (London) emphasized the importance of attention to slight accidents in factories and of co-operation on the part of workpeople in observing regulations. Dr. J. F. Walker (Southend) considered that quality was more important than quantity, and that the reduced birth rate amongst the middle and upper classes was due to the heavy financial burdens. Dr. Johnson Smyth (Bournemouth) suggested that the decrease in tuberculosis followed improved ventilation, and that there was some antagonism between gout and tuberculosis. Dr. Mackail (Glasgow) claimed credit for the work of municipalities in health matters. Dr. Dearden (M.O.H. Port of Manchester) claimed that it was the agitation to reduce the hours of labour in factories that drew attention to the insanitary conditions. Factory legislation needed the stimulus that a body of experts could give. The existing staff was too small. The President suggested that the reduced infantile death rate in times of food scarcity might be due to the deprivation of unsuitable articles of diet. After a few remarks by Dr. A. Forbes (Sheffield), Captain Elliot briefly replied.

SECTION OF OTO-RHINO-LARYNGOLOGY.

MENINGITIS IN AURAL CASES.

ON Wednesday, July 20th, Sir Charles Ballance read a paper entitled "Problems in connexion with the early diagnosis and treatment of meningitis occurring in aural cases." The speaker quoted a number of cases to illustrate various important points on the diagnosis of such cases, and drew a realistic picture of the clinical aspect of meningitis in its several forms. The indications for treatment in different circumstances were outlined. Sir Charles Ballance expressed the view that in cases of very acute mastoiditis the operation for relief of the disease was not complete until lumbar puncture had been performed. For cases in which meningitis was already established still more extensive measures were advocated. The paper was discussed by Sir James Dundas Grant, Dr. Samuel Whillis, Dr. Dan McKenzie, Mr. Sydney Scott, Mr. Frank Wilson, Mr. Hunter Tod, Mr. O'Malley, Dr. Ritchie Rodger, Mr. Woodman, and Dr. MacNab. Sir Charles Ballance replied, and laid special emphasis on the danger of lumbar puncture in cases of tumour or abscess of the brain.

Sir James Dundas Grant contributed an account of a case of suppuration in a subdivided maxillary antrum with nasal ganglion neurosis suggesting malignant disease; operation was followed by recovery. The paper was illustrated by an excellent skiagram of the case by Dr. Knox; it was discussed by Mr. Hunter Tod and Mr. Sydney Scott, who related cases of similar character.

Sir James Dundas Grant read a paper entitled "Remarks on ossiculectomy," in which he outlined the indications for this operation and related several successful cases. Dr. Samuel Whillis gave a demonstration of his method of removing tonsils. Dr. Douglas Guthrie gave a demonstration of plastic operations on the nose, combined with cartilage transplantation. A number of photographs of cases before and after operation were shown to illustrate how saddle-nose could be remedied. In reply to Dr. Don, Mr. Guthrie said he thought the operation should not be done before puberty. Dr. Salisbury-Sharpe read a paper entitled, "Some further remarks on ionization in otitis media." Mr. A. R. Friel read a paper entitled, "Zinc

ionization in the treatment of certain forms of suppuration in the maxillary, frontal, and sphenoidal sinuses, with special reference to technique."

SECTION OF PROCTOLOGY.

TREATMENT OF HAEMORRHOIDS.

A DISCUSSION on haemorrhoids was opened by Sir Charles Gordon-Watson. He said that out of 904 cases of haemorrhoids at St. Mark's Hospital only 598 had to be operated upon as in-patients, therefore about 40 per cent. of these cases could be satisfactorily treated in the out-patient department. He first considered the treatment by means of injection; he only had a limited experience of this method—namely, 49 cases; of these 33 were cured, 9 were improved, and operation was subsequently required in 7 cases—a proportion of 14 per cent. He thought that it was only satisfactory when there was a single bleeding pile, not for multiple piles. Although abscesses were well known as a complication of this method of treatment, they were probably due to faulty technique, and he considered that it deserved further trial. As regards the type of operation employed, he personally rather preferred the clamp and cautery, although ligature was more popular with others. The advantages of the clamp and cautery were absence of pain, quicker return of sphincteric control, the fact that the catheter was seldom necessary, and that sepsis was most infrequent. Retention in hospital was advised up to twelve days, for he found that in cases discharged earlier there was some tendency to contraction. The chief points in the preparation of the patient for operation were very thorough cleansing of the lower bowel and an injection of one-sixth of a grain of morphine just before the operation, and avoidance of eggs and fruit in the diet. He regarded the ligature operation as suitable for all cases, clamp and cautery especially to be recommended for strangulated cases, and in aged and debilitated subjects. He was not much in favour of Whitehead's operation, especially for general practitioners.

Dr. D. Wilkie (Edinburgh) pointed out that internal haemorrhoids were almost always associated with dilatation of the external haemorrhoidal veins. He said that the dangers of the operation were very slight, but he had seen fatal cases of septic phlebitis giving rise to pulmonary embolism and septic cellulitis of the wall of the rectum. The chief point he emphasized in the preparation of the patient was that nothing should be done to the bowel within twelve hours of the operation, thus ensuring that the operation would be performed on the bowel at rest. He, too, considered that while professional proctologists would get good results from any operation, the general practitioner should stick to the method of ligature, and above all things avoid Whitehead's operation.

Dr. Louis J. Hirschman (Detroit, U.S.A.) brought the greetings of the American Proctological Association. He described the method of injection as employed in America, where, instead of carbolic acid, a 5 or 10 per cent. solution of the double salt of quinine and urea hydrochloride was more commonly employed, but its use was confined to cases in which in-patient treatment was unsuitable or operation contraindicated. From one to four injections were required usually, and the whole treatment lasted fourteen to twenty-one days. The operation with clamp and cautery was reserved for cases with large mucous prolapse. He believed in suturing as little as possible in the neighbourhood of the anus. He pointed out that local anaesthesia was much more used for rectal surgery in America than in this country. He claimed for it excellent results, and pointed out that it much shortened the after-treatment. Ninety-five per cent. of his cases were treated under local anaesthesia only. In the preparation of the patient they used in America enemata of sodium bicarbonate instead of soap, because it washed out the bowel as efficiently as soap and water without irritating it.

Mr. Ernest Miles (London) considered that the operation for internal haemorrhoids was simple and safe, and should be free from failure. He thought that the reasons of the failures which did occur were: (1) That early piles were obscured sometimes during the operation by others more fully developed. (2) That search was not always made systematically for the seven piles which might occur, and thus some were missed. (3) They were not exposed adequately, and thus not removed completely. (4) That a bad operation was chosen, and he advised that Whitehead's operation and the method of injection should always be avoided. He pointed out that in France he had seen no less than 139 unsatisfactory results from the attempted injection of haemorrhoids at thirty-seven different hospitals. He believed first in the method of ligature, and secondly in the clamp and cautery.

Sir Charles Ryall (London) complimented the opener on his address. He considered the simplest operation—namely, ligature—must be the best, condemned Whitehead's operation, and said that injection should be reserved for the aged and debilitated and only employed by skilled hands. He recalled a fatal case to which he had been hurriedly summoned by the doctor who had done it, in which the fatal issue had been brought about by tissue necrosis and subsequent haemorrhage. Mr. Cecil Rowntree (London), after having made trial of many methods, was now a devoted advocate of the method of ligature as performed by Mr. Miles. He considered that Whitehead's operation gave a large percentage of unsatisfactory results. He advocated spinal anaesthesia as the ideal method.

The President remarked that this meeting had obviously given the *coup de grâce* to Whitehead's operation, a fact which he personally regretted, as he had derived a certain profit from the performance of corrective operations on patients who had previously been submitted to Whitehead's operation at the hands of others. He regarded injection as a mere palliative, not as a substitute for operation; still there was no doubt that it gave great relief to those who either could not or would not face operation. He believed in the more extensive use of local anaesthesia, and was employing it in increasing degree in his own practice. Pain after operation he regarded as entirely a question of sepsis. He was entirely against a post-operative diet of slops, but gave his patients solids immediately. Sir C. Gordon-Watson, in his reply, expressed gratification that the sense of the meeting was in substantial agreement with him. He said that at St. Mark's carbolic acid had been found the best medicament for injecting. He also criticized the American habit of getting the patient up three to seven days after the operation, pointing out that occasionally, although very seldom, secondary haemorrhage occurred between the sixth and tenth day.

SECTION OF VENEREAL DISEASES.

MEETINGS of the Section of Venereal Diseases were held on Wednesday and Thursday, July 20th and 21st, with Colonel L. W. Harrison, D.S.O., R.A.M.C., in the chair. The following papers were read: "Treatment of syphilis in man," by Dr. R. MacKenna; "Syphilis in women and children," by Professor Walter Swayne; "Treatment of gonorrhoea in man," by Mr. David Lees, F.R.C.S.; "The standard of cure in gonorrhoea," by Dr. Townley Clarkson. In the discussion following the opening papers the following took part: Dr. James Buckley (Nottingham), Dr. John Elliott (Chester), Dr. Edward Harrison (Hull), Mr. E. B. Turner, F.R.C.S. (London), Dr. Hudson (Newcastle), and Mr. Kenneth Walker, F.R.C.S. (London). At the invitation of the Section, Lieut.-Colonel Ritchie, of the League of Nations Red Cross Societies, and Dr. Gordon Bates, of the Canadian Council for Combating Venereal Diseases, spoke of the work being done in their respective spheres for the combating of the disease. In the afternoon of July 21st a special demonstration was made of instruments used in the treatment of venereal disease. An excellent collection of water-colour paintings of syphilitic lesions was lent for the occasion by Dr. R. A. Bolam. Amongst other exhibits were the following: outfit for the diagnosis and treatment of venereal disease and model of venereal clinic, supplied by National Council for Combating Venereal Diseases; pathological specimens of livers from fatal cases of arsenobenzol poisoning, lent by Dr. T. W. Shore; exhibits of catheters and genito-urinary instruments by various manufacturers. The demonstrations were carried out by the President of the Section, Colonel L. W. Harrison, and were well attended. At the meeting of the Section held on the morning of July 21st the following resolution was proposed and passed unanimously: "That this meeting desires to bring before the Council of the British Medical Association the necessity of taking such action as will ensure the inclusion of instruction in venereal diseases in

the curriculum of every medical student, together with the institution of a test of proficiency in diagnosis and treatment as a condition of qualification. It desires also to draw attention to the advisability of encouraging by every means possible the carrying out of post-graduate instruction in these subjects amongst general practitioners."

AMBULANCE AND RED CROSS.

FIRST-AID WORK.

DR. ROBERT ANDERSON, one of the Vice-Presidents, was in the chair at the meeting of this Section on Wednesday, July 20th. Apologies for absence were read from Sir George Beatson, M.D., and Major-General Sir George Evatt, Vice-Presidents. Sir James Cantlie opened the subject of first-aid work. Forty years of teaching ambulance, he said, had brought home the fact that it was in the interests of the public during peace as well as for the soldier in war that the work of ambulance teaching should be raised from out of the haphazard methods of instruction which up to the present had prevailed. He described how Esmarch, the founder of military ambulance, after seeing in 1881 the meaning of civil ambulance in Britain, returned to Kiel and there raised the subject to the higher platform of university teaching. In Britain, Sir James Cantlie urged, this had never been done. We had been content to let ambulance be taught in the noise and dust of the railway goods shed. He recalled his own early lectures in a shed at Charing Cross, with a candle stuck in a beer bottle as an illuminant. It was the result of forty years' experience that induced him in 1914 to open the College of Ambulance in London, the initial funds being a present from the pupils who crowded into the ambulance classes at the Regent Street Polytechnic. The weekly attendances at the college for three years amounted to over 900. The college was now incorporated, and was a national institution regulated by a governing body with Sir Rickman Godlee as president. It had become a great centre of teaching ambulance, and it was hoped to secure a site and building for the establishment of a technical college at which ambulance workers might be educated in a manner worthy of this important department of practical medicine and surgery. The response to the appeal for support had been most generous and encouraging. Ambulance was not a question of to-day but of all time. Dr. Robert Anderson was also able to speak with forty years' experience of ambulance work. He described how he gave his first lectures on the subject in Northumberland in 1881, and gave some interesting illustrations of the value of the instruction given to miners in a large area around Newcastle. Sir James Cantlie then showed a map of Great Britain marked out into districts in connexion with the idea of utilizing the *x*-ray motor ambulance, which originated in a conversation between Major Robert Mitchell, Dr. Robert Knox, and himself. He explained how the Eccentric Club contributed the funds for the purchase of the motor ambulance wagon which worked in the London district with the College of Ambulance as a centre. A demonstration of the value of the new yoke slip for stretcher-bearers was then given by Sir James Cantlie. Dr. George Locke described the excellent motor ambulance in use at Hastings, and expressed his intention of furthering in that locality the interests of the new Motor Ambulance Society.

A remarkable demonstration was then given of Thomson's machine for armless men. Sir James Cantlie described how Mr. George Thomson of Edinburgh came to devise this machine, which so marvellously imitated hand or arm movements. An armless man sitting at a table fed himself, lighted a cigarette, washed his face, and did many other things with astonishing ease, and the demonstration was loudly applauded. In the afternoon a demonstration of rescue work was given by Mr. F. P. Mills at the Miners' Rescue Station in Newcastle.

APPLIANCES AND PREPARATIONS.

An Improved Surgical Needle.

MR. H. S. SOUTTAR, F.R.C.S. (Director of the Surgical Unit, London Hospital), writes: It must have occurred to every surgeon that it would be a great advantage, especially for intestinal work, if the doubling of the suture necessitated by the ordinary needle eye could be avoided. After a series of experiments we have succeeded in producing a needle with a tubular end into which the suture can be firmly fixed. In the case of catgut, owing to the swelling which occurs on immersion in water, the result is a needle and suture of the same diameter throughout, any catch in drawing them through the tissues is entirely avoided, and the performance of delicate intestinal suturing is greatly facilitated. The needle is being manufactured for us by Messrs. Charles Spencer of Redditch, who will shortly be able to supply it in every form, straight or curved, round or cutting, and in every size. Threaded with "London Hospital" catgut, packed sterile in tubes, and ready for immediate use, they can be obtained from Messrs. Allen and Hanburys, the sole distributing agents for the London Hospital.

INTERNATIONAL CONFERENCE ON TUBERCULOSIS.

NEARLY forty countries, from China to Peru, were represented at the second Conference of the International Union against Tuberculosis, which took place in London from July 26th to 28th. There was an impressive variety of language and complexion when the delegates were presented one after another to Sir Robert Philip, the President, and said a few words about the zeal of their respective countries in the eradication of the white scourge. Recent enemies like Italy and Austria joined in a common sentiment, and the voice of Haiti was heard equally with the eloquence of America. Unfortunately, the chief spokesman of France, M. Léon Bourgeois, President of the French Senate, could not be present; his place was taken by M. André Honnorat, lately a member of the Government. An official welcome was tendered to the Conference by the Marquis Curzon of Kedleston and Sir Alfred Mond. The Foreign Secretary brought with him a message from His Majesty, who wrote that the encouraging success already manifested from co-ordinated efforts in the cause of health led him confidently to hope that further advances would take place as a consequence of the work of the Conference, in which, following the example of his father, he had a deep interest. On his own behalf Lord Curzon said that the Conference appealed to him, not merely because of the work which its constituents were doing in combating disease, but because it afforded one more illustration of the ever-growing brotherhood of thoughtful and active men in all countries; neither philanthropy nor science knew anything of frontiers. The Minister of Health devoted himself to a recapitulation of the labours of his department. In England and Wales, he said, there were now 341 tuberculosis officers, 412 dispensaries, and 18,050 sanatorium beds. These beds had increased by 4,000 during the last two years, and during the next two years, with the completion of the buildings now in progress, 3,500 additional beds would be available. In 1914 there were 99,000 notified cases of tuberculosis and 50,000 deaths; in 1920, 73,000 notified cases and only 42,000 deaths. Two main discussions occupied the Conference: one on the modes of diffusion of tuberculosis throughout the races of the world, which was opened by Professor Calmette, of the Pasteur Institute, and the other on the part the medical profession played in the prevention of tuberculosis, opened by Sir Humphry Rolleston and Sir George Newman. Of these discussions we shall give some account in our next issue. On the first day of the Conference the annual meeting of the National Association for the Prevention of Tuberculosis formed part of the proceedings, when an address was given by Dr. Armand Delille, of Paris, on the system of the late Professor Grancher for protecting children against a family predisposition to tuberculosis. When a parent is found to be affected, the children, while still healthy, are removed to a new environment in the country, where, lodged with peasants, they remain for several years. Out of 2,300 Parisian children who have been thus dealt with since 1903, only seven have become tuberculous, and two have died from meningitis. The work is carried out on the basis of a private charity, subsidized by the French Government and the municipality of Paris. A number of keen questions were asked at the close of the address, particularly as to the willingness of parents thus to surrender their children, and Dr. Delille admitted that it was difficult at first, but became easier as the result of propaganda.

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THE NEWCASTLE MEETING.

IN a note written last week when the Annual Meeting had scarcely run half its course, we ventured to speak of its success as already assured. The events of the closing days gave ample justification for that opinion. All who attended the meeting of the British Medical Association at Newcastle-upon-Tyne are agreed that from start to finish everything went well under the genial presidency of Professor David Drummond. In the first place, the numbers were highly satisfactory; by Friday morning more than 800 names had been registered. More important, however, than mere numbers was the keenness and spirit of good fellowship which prevailed. The North Country is famous for its hospitality, and the genuine warmth of Newcastle's reception will stand out in the memory of every visitor.

The scientific and clinical work of the meeting, to which the presidential address formed a fitting prelude, was carried out in a larger number of Sections than in the previous year; but interest was well maintained, and many of the papers and debates opened up topics of much importance in medicine, surgery, and pathology, or brought professional opinion to a focus. We begin elsewhere a running account of the proceedings, which gives in the form of a series of outline sketches some idea of the scientific and clinical discussions. In subsequent issues we shall publish full reports of the work of all the Sections. Following the plan initiated at the special meeting in London in April, 1919, and further developed last year at Cambridge, demonstrations, organized by Mr. H. Brunton Angus, were given in the afternoons of each of the three days on which the Sections met. The success attained in this direction in London, Cambridge, and Newcastle has been so great that it may well be hoped that demonstrations will form a permanent feature of the annual meetings; medicine is so largely objective that an opportunity for examining cases, specimens and technical processes, and of seeing experts at work is needed to supplement discussions and verbal descriptions. Keen interest was shown, too, in the excellent pathological museum arranged on the ground floor in the College of Medicine; of it we propose to give an account in an early issue.

In connexion with the work of the scientific sections acknowledgement must be made to Sir Theodore Morison and the Council of Armstrong College, who placed the whole building at the disposal of the Association. Fourteen Sections met there, and the King's Hall was made use of for the Representative Meeting, for the General Meeting, and for many of the evening functions. In the same way Professor Drummond and the Council of the College of Medicine lent the whole of that building for the purposes of the meeting. The thanks of the Association are due also to the House Committee of the Royal Victoria Infirmary for endless facilities, more especially in relation to the afternoon demonstrations held there; and to Colonel Grieg, C.M.G., Medical Superintendent of the War Pensions Hospital, for a like service.

Four days were as usual set apart for the transaction of medico-political business by the Representative Body of the Association, and each day was fully occupied. The report of the proceedings of the first two days and a half appeared in last week's SUPPLEMENT, and the conclusion is reported in the same detail this week. From these accounts it will be seen that the work was heavy, and that several difficult and urgent problems were debated at length. The question of professional secrecy was gone over anew in the light of recent events, and the very strong feeling that exists on the subject was manifest. This expression of the Representative Body's opinion will carry great weight both with the profession at large and with the public, but a year must elapse before the resolution adopted can become in the strict constitutional sense a declaration of policy by the British Medical Association. Time is thus given for fuller study of a very difficult subject in all its bearings, and the Council will no doubt make a further report on the subject. The Birmingham motion, as amended and carried by a large majority as a substantive resolution, was: "That the Association use all its power to support a member of the British Medical Association who refuses to divulge, without the patient's consent, information obtained in the exercise of his professional duties, except where it is already provided by Act of Parliament that he must do so."

The debate on the question of federation was noteworthy for the full and clear statement made Dr. R. H. Todd, who had come to England in order to represent the Association in Australia at the Conference of Overseas Delegates held in London on July 5th. His message in brief was that the Australian Branches desired to have a corporate existence, while remaining within the Association; speaking as a lawyer, he indicated a way in which legal obstacles could be overcome. He carried the meeting with him, and the recommendation of the Council that, if possible, provision be made in the regulations of the Association to allow the Overseas Branches to retain the character and status of Branches, although incorporated, was agreed to with acclamation. It is the earnest hope of us all that a way will soon be found to put this into effect. We have not space here to go further into the work of the Annual Representative Meeting this year beyond noting the warm vote of thanks accorded to Dr. Garstang on his departure from the chair after three arduous years of service. Dr. Macdonald well said that Dr. Garstang's steadfastness and judicial firmness in handling the meeting were evident to every one; we may be allowed to add that few know the extent of his devotion—day in, day out—to the work and welfare of the Association throughout his period of office.

We have mentioned the abounding hospitality of Newcastle, to which was due the success of the social side of the Eighty-ninth Annual Meeting of the Association. Every day had its sequence of delightful entertainments; some account of them appeared last week or is given in our present issue. The evening functions in particular were attended by very large numbers. The varied programme of excursions and visits of inspection was brought to a close on Saturday, July 23rd, by a whole-day expedition to the Roman Wall, in which more than 120 visitors took part. A notable feature of the meeting was the civic welcome given to members of the Association; the Lord Mayor, Councillor Rowe, paid an early visit to the Representative Body and entertained a large company to dinner at the Mansion House, and the garden party given by the Lord Mayor and Corporation in the lovely grounds

of Jesmond Dene was one of the pleasantest events of the week. A special convocation was held during the meeting in the Castle Hall, Durham, for the conferring of honorary degrees, and afterwards the President and Council of the Durham Colleges welcomed a large party in the Fellows' Garden of University College; a more beautiful setting for such a function can scarcely be imagined. There were many other social events, and brief acknowledgement to those who provided or organized them is made in another column; some reference to this subject will also be found in the speeches at the annual dinner, fully reported in the SUPPLEMENT.

From what has been said it will be plain that the Annual Meeting was admirably organized. For many months beforehand a team of willing workers had spent themselves in perfecting the local arrangements. Among the local executive a few outstanding members only can be mentioned here. One name in particular will always be identified with the Annual Meeting of 1921. It is true to say that every visitor is under a debt of gratitude to Mr. R. J. Willan, the Local General Secretary, for his splendid staff work. Mr. Willan's energy and good-humour pervaded every part of the organization, and nothing was too big or too small to escape his watchful eye. High praise must be accorded also to Dr. Farquhar Murray, Secretary of the Hotels and Lodgings Committee; to Dr. G. Hall, Treasurer and Honorary Secretary of the Finance Committee; to Mr. G. Grey Turner, Chairman of the Printing and Publishing Committee; to Dr. Neil Maclay, Secretary of the Dinner and Luncheon Committee; to Dr. F. G. Nattras, who organized the evening functions; and to Dr. H. L. Rutter, Honorary Secretary of the Reception Committee. For their work in connexion with the Ladies' Club, special acknowledgement must be made to Mrs. R. A. Bolam, Dr. Mabel Campbell, and Mrs. W. Martin. Dr. Edgar Babst earned general thanks for his work in conducting parties to industrial works, and Dr. W. J. Durant was responsible for the excursions. Finally, let it be said that Dr. Bolam, Chairman of Council, spared no pains to render the visit of the Association to his native city agreeable. He was ubiquitous but self-effacing, and his few public utterances were admirable in form and matter.

HOSPITAL POLICY.

IN the SUPPLEMENT of this issue will be found a report of the proceedings of the Representative Body in regard to the hospital policy of the Association. Many new conditions are taking shape in hospital affairs, both in voluntary and in Poor Law hospitals. Hospitals that were charities free to the indigent now take patients who pay their way to a greater or lesser extent. Contributory schemes frankly based on the promise of hospital benefit as of right are being pushed into prominence. Poor Law infirmaries, the former refuge of the sick pauper, are being advertised as highly desirable hospitals with a scale of charges that leaves no thought in the minds of the patients of a vestige of pauperism. These new conditions affect the position of medical practitioners everywhere, and not least those who are members of hospital staffs. In the autumn of 1920, on the decision of the Minister of Health to appoint the committee which sat, under the chairmanship of Viscount Cave, to inquire into the financial position of the voluntary hospitals throughout the country, the British Medical Association took steps to ascertain the opinion of the members of hospital staffs. A conference held in London on December 1st was attended by representatives from twenty-seven London and seventy-one provincial hospitals; in most instances a hospital was represented by both a physician and surgeon from its staff; they were not necessarily members of the Association. At that conference a series of resolutions were agreed upon with remarkable unanimity, and formed the basis of the evidence given by the representatives of the Association before Lord Cave's Committee. Many of them were included among the recommendations of that Committee and are now being put into practice by the Government. At the meeting of the Representative Body of the Association at Newcastle they were submitted as recommendations from the Council for the formation of a hospital policy so far as voluntary hospitals are concerned; in every essential point they were approved by the Representative Body by large majorities.

The first of these resolutions defines what is meant by a "voluntary" hospital; this was very necessary since the term is often used with a looseness that is not a little inconvenient. The hall mark of a voluntary hospital is its independent and voluntary administration. As institutions they are free to develop their own special characters, they come under no law but the law of life, and in this atmosphere of freedom and independence there grows a fine flower of medical knowledge and experience that is the envy of every other hospital system in the world, and an invaluable medical asset to the country.

Finance is the next point. Some would hold that doctors are not concerned with hospital finance. The denial is strange, seeing that not a few of the voluntary hospitals owe their foundation to the energy and philanthropy and sometimes also the munificence of doctors, and that many members of the profession serve on hospital governing boards. The Representative Body held that aid from local rates was undesirable, but that greatly extended support should be given by employers of labour and insurance companies, seeing that they benefit largely by the services of these hospitals. It recommended also that every patient who is able should make a contribution during treatment to the cost of maintenance, unless the contributory method of subscription is adopted as essential in industrial areas.

The difficulty of the situation so far as the terms of service of the medical staffs are concerned is due to the admission of patients of this part-paying or contributory class. The profession in the past has viewed the voluntary hospital as a charity, using the term in the old and lovable sense—the exemplification of the chief of Christian graces. It was a place maintained by the benevolent, where all the patients were empty of this world's goods but full of the claims of suffering, and where the doctors gave their free service. Though this view is still widely held, there has been a change, and it is a change economically for the better. Poverty is diminished, ability to pay increased. The voluntary hospitals must change to meet the new conditions. The coming of patients who pay little or much initiates a policy which may profoundly alter the character of these hospitals; and that change, even in its beginnings, must be met by the recognition of an equivalent change in the conditions of service of the medical staffs. The profession is as fully prepared to-day as of old to do philanthropic work in at least equal proportion to other sections of the community, but if that work be no longer wholly philanthropic, the necessity for remuneration of the medical staffs, if only as a token, must be conceded. This necessity is summed up in a resolution drafted to meet these new conditions by the medical

staff of a large provincial hospital, and accepted unanimously by the conference on voluntary hospital staffs in December last. It has now been approved by the Representative Body of the Association, and sets out that "in the event of decisions being taken which would lead to patients paying, in part or in whole, the hospital maintenance fees, either individually or by some contributory method, or with the addition of rate aid or State aid, or by a combination of two or more of these methods, a percentage of all such payments should be passed into a fund which can be allotted in any manner which the honorary medical staff may determine." At first sight the attitude outlined in this resolution may seem ungenerous and to be a claim for a share in the pittance paid to the hospital by the poor. But it is not so. It is the enunciation of a principle which needs recognition at the outset of the part-payment era lest trouble arise in the possible whole-payment era. So long as these part payments are inconsiderable a token payment to the medical staff fund is all that is needed in recognition of this principle, and that is a matter of arrangement between hospital boards and medical staffs. It is the more necessary seeing that the era of whole payment, either by direct payment or by provident and contributory schemes, may be not far distant, and when these arrangements exist the scheme of the medical staff fund in its fullest implications is indubitably just.

This recommendation, which was submitted in evidence to Lord Cave's Committee, is commented upon somewhat adversely in its report (para. 50), and upon grounds that appear to us inadequate. "If the system of carrying a percentage to a staff fund," the report states, "is confined to cases where the full cost of maintenance and treatment is paid by or on behalf of the patient, not much objection can (we think) be taken to it; but any extension of the practice beyond those limits appears to us to endanger the future of the voluntary hospitals." That paragraph came under review by the Representative Body, and its implications were directly challenged as erroneous by the adoption of a resolution which specifically declared "that the essence of the voluntary hospital system is the independent and voluntary management, and that this is in no way related to the conditions of service of the medical staff."

The policy of the Association as regards Poor Law infirmaries aims at bringing these hospitals into the main stream of the medical practice of the country. Some of these institutions possess excellent hospital buildings, and it is our desire to see them used to the fullest possible extent. New social conditions have reduced the number of those formerly eligible for admission. Schemes are being developed by boards of guardians which tend to make these institutions hospitals for paying patients. These schemes are viewed with favour provided they are planned in conformity with certain principles now approved by the Association. The first is that before a scheme is formulated in any area the local medical profession must be consulted, for it would be most affected and in its hands the success or failure of the scheme would lie. The second is, that if these hospitals are thrown more widely open and are made available for persons who do not come by way of the relieving officer, these patients (except in emergencies) should only be admitted on the recommendation of the practitioners attending them. The third is, that arrangements should be made whereby, under the administrative control of the medical superintendent of the infirmary, the local practitioners could follow their own patients into the infirmary and attend them professionally. Lastly, it is desired that the closest possible working arrangements should be entered into between the voluntary hospitals and Poor Law infirmaries, so that the treatment of patients may be expedited and the facilities for teaching extended. Voluntary institutions established by the benevolent led the way in hospital experience; the State hospitals have followed, but upon other lines. The policy of the Association aims at such a close working connexion between these two forms of enterprise that the best of each may be preserved and developed for the good of future generations.

The whole hospital policy of the British Medical Association is based upon experiences obtained in many different parts of the country through the energy of the practitioners of those areas; it is therefore a practical policy. To bring it into effect in other quarters needs a similar development of energy; we commend this consideration to the Divisions of the Association and to members of hospital staffs.

ANNUAL MEETING NOTES.

THE ADDRESS ON INDUSTRIAL HYGIENE.

A SPECIAL address on industrial hygiene, its rise, progress, and opportunities, was delivered in the King's Hall of Armstrong College on the evening of July 20th, by Sir Thomas Oliver. The address, which was printed in full at page 108 of last week's JOURNAL, was listened to with evident interest by a distinguished audience. The President of the Association, who was in the chair, said that in Sir Thomas Oliver's address they had the considered views of a scientist and an expert who had devoted much of his life to the hygiene of the worker. In Newcastle they were very proud to have among their number one who enjoyed a great reputation in this field, a reputation which extended beyond the confines of his own country.

At the close of the address, Captain W. E. Elliot, M.P., moved a very hearty vote of thanks to Sir Thomas Oliver. It was a pity, he said, that owing to another function, the address had had to be cut a little shorter than was intended, for nothing could be more helpful or useful than to spend a little time considering these enormous problems. When one heard the considered judgement of Sir Thomas Oliver that this country led the world in preventive legislation, particularly with regard to lead poisoning, one felt not merely how great was the honour of such a position, but also how great was the responsibility of continuing in the van of progress. Fortunately, in that further effort, they who had anything to do with legislation would still have the advice, the sympathy, and the wide outlook of Sir Thomas Oliver to inspire and counsel them. Nothing was truer than what Sir Thomas had said, that new industrial processes, necessitating ever new adjustments in hygiene, would be forthcoming, for the incurably restless spirit of man was always running his poor body into perils of which he took no heed at the time, until presently the scientific mind became alive to the situation and found a means of rescuing him from the jeopardy in which he stood. An illustration might be drawn from medicine itself, some of whose followers had suffered from the power of highly penetrating x rays to affect the bone marrow, and efficient methods of protection were only devised after much injury had been wrought. It must be taken for granted that these great mass experiments of labour would continue to be made, and these huge risks would continue to be run, so that it was urgently necessary, first, that employers should realize that there was to be found in medicine something which was of the utmost advantage to themselves as employers if they would call it into their councils, and

secondly, that medical men, when their advice was asked by the great industrialists, should have something wise and skilful to tell. When the great industrialists who were using labour *en masse* brought their problems to the medical profession that profession must be able to reply, not merely with laboratory tests and experiences, but, as Sir Thomas Oliver had said, with the results of their study of the reaction of human beings to these novel and terrible stimuli.

The vote of thanks was seconded by Dr. I. G. Modlin, of Sunderland, and heartily accorded. Sir Thomas Oliver, in reply, said that the question he had dealt with was one which was very much before the public even now, and would be more so in the future. They would all have to face these problems at some time or other, and if in any way he had contributed to their better elucidation he was very proud.

THE POPULAR LECTURE.

THE Popular Lecture was delivered on Friday evening in the King's Hall by Sir Arthur Keith, whose subject was "Evolutionary wounds, their healing and rôle in the evolution of the human body." In opening the proceedings Professor Drummond said that he thought the very large audience might be divided into three parts. The first would consist of those members of the Association who were present on the previous day at the Convocation at Durham, when Sir Arthur Keith received the honorary degree of Doctor of Science. These members, having heard the eloquent words which were used in presenting him, would not require a further account of his great attainments. The second part of his audience consisted of fellow scientists, people like Sir Arthur himself, who had read all his books and knew all about them. But the most considerable section of the audience was the general public who, in their daily lives were less familiar with the subjects that occupied Sir Arthur Keith's researches and imagination, and to these he would only say that Sir Arthur was one of the most distinguished of our scientists. He had asked his guests at dinner that evening to give him a name with which he might describe the lecturer. One of them said that he was best described as an osteologist, another as an anthropologist, but one distinguished physician said, "I don't know what you would call him, except the right man in the right place." It was as the right man in the right place that he would introduce the lecturer. Sir Arthur Keith then delivered his lecture, which was illustrated by lantern slides, and was followed by the audience with very close attention. The lecture is printed in full at p. 137.

Sir Charles Parsons proposed a vote of thanks. It had been, he said, a most brilliant discourse on one of the most difficult subjects it was possible to conceive, and yet a subject which was more important to the human race than all the theories of Einstein. He remembered years ago hearing that Huxley had a vague idea that a wound healed as the result of the work of some minute and beneficent organisms in the system; these, it was said, were able to work collectively for the rebuilding of the human frame. The speaker was an engineer and physicist, not a surgeon, but he felt that those who were occupied with the intimate study of the life structure were on the verge of discovering some cause or source of energy which produced these wonderful transformations and built up living matter. The discovery of the mechanism must surely lead to results of incalculable value to the human race. When it was understood that the brain was like a barracks, sending out little pickets to regulate the various functions of the body, surely we were approaching towards the elucidation of what Sir Arthur Keith had hesitated to call a miracle. As an engineer he had a great desire to know more about these changes, to feel, behind the demonstrable result, towards the secret process. Of the lecture itself he would only say that it went again to prove that all great men who succeeded were very humble men, and were not afraid to confess their lack of knowledge. Sir Arthur Keith had told them that certain things were unknown. To realize that was the beginning of progress. Mr. Percy Corder, a member of the Council of Armstrong College, seconded the vote of thanks, and said that a great debt was owing first of all to the Council of the British Medical Association for allowing members of the general public like himself to hear this wonderful address, and, secondly, to Sir Arthur Keith for delivering it. Many men of science were learned, but not all were luminous.

THE NEWCASTLE MEDICAL INSTITUTE.

A VERY interesting function took place during the Annual Meeting at Newcastle, when the Right Hon. Sir Clifford Allbutt, K.C.B., F.R.S., formally opened the Medical Institute (J. Wilkie Smith Memorial), 7, Windsor Terrace, on Tuesday, July 19th. Professor David Drummond presided. Sir Clifford Allbutt emphasized the importance of the action of Dr. J. W. Smith in founding such an institution. He had felt all his life, especially in his younger days, the isolation of medical men, particularly in country districts. Town men also were busy, hours were uncertain, and they, too, got isolated, with the consequence that misunderstandings and jealousies arose which could only be cleared up by meeting each other in such an institute as this one. The wish of the founder was that in addition to the social side it should have a scientific interest also, and although it was not fitted with laboratories it could be made a clearing house for scientific material. Courses of lectures and demonstrations might be given. Sir Clifford remarked that it was a great pity that a good deal of knowledge possessed only by general practitioners never got into any book simply because the author was ignorant of it. He then formally declared the Institute open, and expressed the cordial thanks of the profession to Dr. J. W. Smith for his gift. Dr. J. W. Smith said that no one more appropriate than Sir Clifford Allbutt could have been found to perform that ceremony; he was the head of his profession, was well versed in science and higher culture, in short, he was the embodiment of what the Institute stood for. Votes of thanks to Sir Clifford Allbutt and Professor Drummond concluded the meeting. Those present were afterwards entertained to tea as the guests of Dr. Smith.

RECEPTIONS AND ENTERTAINMENTS.

ON the evening of Tuesday, July 19th, after the President's Address in the King's Hall, Armstrong College, a reception was given by the President and Mrs. Drummond in the Assembly Rooms Club, which was attended by the Bishop of Newcastle and Mrs. Wild, the Lord Mayor and Lady Mayoress, and a large number of medical men and women. At this, and at the other main social functions, many wore academic robes. On the following afternoon a large garden party was held in Jesmond Dene, on the invitation of the Lord Mayor and Corporation of Newcastle, and in the evening a reception was given by the North of England Branch Council in the Hancock Natural History Museum, kindly lent for that purpose by the trustees. The guests were received by the President of the Branch, Dr. T. Eustace Hill, of Darlington, M.O.H. for the County of Durham, and Mrs. Hill. A musical programme was provided by the Elswick Concert Party and the Wallsend Male Choir, and the first of several dances was afterwards held in the Assembly Rooms Club. On Thursday evening, whilst the annual dinner of the Association was in progress, a musical entertainment was provided at the Hippodrome, and many ladies attended; it was followed by a dance in the King's Hall. On Friday evening a reception and dance was given in the Grand Assembly Rooms by the proprietors of the *Newcastle Chronicle*. The guests were received by Sir Arthur Sutherland, Bt., K.B.E., and Mrs. Joseph Reed, together with Miss Kathleen Sutherland, Mr. A. Munro Sutherland, and Colonel Joseph Reed. More than 800 were present at this the closing function of the week.

Earlier in the course of the meeting Mrs. Ranken Lyle entertained the wives of representatives to an enjoyable garden party, and Mrs. J. J. Gurney gave an At Home to medical women visiting Newcastle, while the Durham University Union Society lent the whole of its rooms, together with the services of its staff, free of cost, for use as a ladies' club. On Friday afternoon a considerable party made a tour of the River Tyne, from Elswick to the Tynemouth Piers, in the S.Y. *Sir William Stephenson*, courteously lent by the Tyne Improvement Commissioners. This excursion afforded an opportunity of seeing the Tyne industries on the river and banks, including the great shipbuilding yards, and the party was entertained to tea by the Tyne Port Sanitary Authority in their floating hospital. On the way back a ship launch was witnessed; this had been specially arranged by Sir G. B. Hunter, through whose kindness the great shipbuilding yard of Swan, Hunter and Wigham Richardson had been visited on Wednesday afternoon. Other afternoon excursions during the week included visits to the large Electric Supply Works at Carville; to the Redheugh Gas Works, Ferry's and Davidson's Glass Works, the Team Valley Paper Mills, Carr's Confectionery Works, Allhusen's Chemical Factory, and Sowerby's Glass Works, all at Gateshead; to Robinson's Printing and Lithographic Works, Newcastle-upon-Tyne, and the Wholesale Co-operative Works, at Pelaw. The North-Eastern Railway Company arranged for a visit to their locomotive works at Gateshead, and, in addition to that and other acts of courtesy, the company sent each day an inquiry clerk to the reception room for the benefit of medical visitors. On Saturday a large party made an expedition by rail and car to the Roman Wall. The thanks of the Association are due to Mr. W. Parker Brewis, F.S.A., and Mr. Gerald Simpson for giving up so much time to those who attended this excursion, and for conducting a series of parties over the Old Castle, the Black Gate, and Trinity House. Throughout the week the Royal Automobile Club supplied five scouts who were entirely responsible for the parking of the motor cars during the meetings and functions. Many opportunities for golf and other games were provided; the Ulster Cup Competition, of which an account is given in the SUPPLEMENT, was ably organized by Dr. J. N. Gover.

MEDICAL MISSIONS MEETING.

A MEETING was held at the Kinnaird Hall, Newcastle, during the week of the Annual Meeting, to consider the work of the medical profession in the mission field. Representatives of all the missionary societies which have medical auxiliaries were present. Tea was provided by Mr. and Mrs. Stanley Dalgleish, and afterwards, with the President of the Association in the chair, an address was given by Mr. J. Howard Cook, F.R.C.S., for twenty-one years a medical missionary in Uganda, and now secretary to the Medical Committee of the Church Missionary Society. He described the wonderful development of hospital work in Uganda, telling of a well-equipped base hospital which, with four branches, dealt with 90,000 out-patients in one year. The scenes which Mr. Cook encountered in Uganda on first going to places where no qualified medical man had been were most distressing. One man with elephantiasis, for example, would take a razor and cut slices out of his tumour, nearly dying of haemorrhage in consequence. Women in pregnancy were largely doctored with poisonous herbs. Little wonder, when one considered the conditions as to pregnancy and childbirth, that the proportion of stillbirths in parts of Uganda should be 33 per cent. and the infant mortality 70 per cent. of the infants born alive. The native treatment of cases was as a rule either futile or fatal. He described a native medicine man who gained a reputation for curing sleeping sickness by making parallel cuts in the patient's skull, rubbing in a mixture of cow dung and other materials, wrapping banana leaves round the head, and leaving the victim for a week. At the end of that time he would tear off the coverings and point to the wounds as evidence that the disease was coming out. Professor Harold Balme, F.R.C.S., Dean of the Shantung Christian University, described the building up of a medical profession in China. The older China, he said, had failed to develop what we in this country had come to regard as a medical fraternity. Such knowledge as was obtained by the shrewd old Chinese physicians became the private monopoly of the individual practitioner, so that as long as these conditions obtained no medical profession in the western sense could ever develop. Thanks, however, to the work of pioneers like Thomas Richardson Colledge, a new era had opened, and the Chinese to-day were starting medical schools of their own, of which there were seven or eight in existence. The development of nursing had also been a very remarkable feature of recent years. In China there were now between fifty and sixty training schools for nurses, and these had the approval and increasing interest of the Government. The President said that as a teacher of medicine he had been concerned with the equipment of the medical missionary; such equipment should be every whit as efficient as that of his colleague who practised at home. In seconding a vote of thanks (which was proposed by the Bishop of Newcastle) Dr. Percy Wigfield assured the President that societies which had medical mission auxiliaries were not content to send out any sort of doctor to represent the Christian Church; the standard set up was the highest possible.

NATIONAL TEMPERANCE LEAGUE BREAKFAST.

THE National Temperance League breakfast took place at the Grand Assembly Rooms, on July 21st; Sir George B. Hunter, a vice-president of the League, acted as host, but the chair was taken by Professor Drummond, the President of the Association. In a brief address, Sir Alfred Pearce Gould said it was a matter of common knowledge that the use of alcohol as a therapeutic agent had greatly lessened during the last thirty years, and in its diminished field to-day it was used only as a narcotic, not as a stimulant. The medical profession had a very special responsibility in reference to the widespread drinking customs of the people, a responsibility which it had not yet adequately realized or shouldered. The alcohol question was really a problem in biology, and Medicine was the only organized profession whose entire concern was with human biology, and the only profession which by its training and confidence in the methods and results of experimental research, as well as by its knowledge of the facts, was able to guide the State and the individuals composing it in the solution of what was undoubtedly a very grave problem. Medical men were not only concerned with the care of the sick—they were the rightful guardians of the health of the community. They came short of their duty if they failed to learn for themselves and to make known to the limits of their ability the well ascertained facts which bore upon the maintenance of the fullest health and physiological vigour of the community at large. It was a responsibility which began at home. Members of the profession did not really believe in the ascertained facts of science, however earnestly they might try to teach them, unless they allowed those facts to influence their own personal conduct. If the medical profession was to act up to its responsibility as a teaching profession, it must as a preliminary be willing itself to follow the teaching. A full and complete knowledge of the influence of alcohol upon the human organism was certainly lacking, but the same must be said of the law of gravitation, though this did not prevent the teacher of physics from making sure that the chair was beneath him when he wanted to sit down. Sir A. Pearce Gould appealed to his colleagues in the profession not to come short of their highest personal duty in this matter. Lady Barrett

proposed a vote of thanks to the host, the President, and the speaker, and this was seconded by Captain W. E. Elliot, M.P., and supported by Dr. Courtenay C. Weeks, who said that the spirit of Sir Victor Horsley still seemed to dominate that gathering; and he recalled, as an inspiring theme for the League itself, Sir Victor's parting words to Lady Horsley before going to Mesopotamia, "I cannot live for ever; it is the young who matter." The President, in closing the proceedings, said that while not himself entitled to wear the blue ribbon of total abstinence, he could assure them that he and the whole profession in Newcastle and district were in entire sympathy with the aims of the National Temperance League. There was probably no industrial district where alcohol was less used by the local profession, either for their own consumption or for recommendation to their patients.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.

THE annual summer general meeting of the Irish Medical Schools' and Graduates' Association was held on July 20th at Newcastle. The chair was occupied by Dr. J. A. Macdonald, LL.D., President-elect, in the absence of the President, Major-General Wallace Kenny, C.B., A.M.S. The Chairman said that the numbers who had assembled at the lunch which preceded the meeting showed that the society was fulfilling the principal object which its founder (Dr. James Thompson of Leamington) had in view when it was started forty-three years ago—namely, to give the alumni of Irish medical schools the opportunity of foregathering from time to time and renewing the friendships formed as medical students in Dublin, Belfast, Cork, and Galway. The war had more or less interfered with another object, but if the success of the Development Committee that had been formed was what he anticipated, the resources of the association would soon be such that they would be able to resume the effort to break down the monopoly which still prevented those holding the highest Irish diplomas from becoming candidates for honorary appointments on the staffs of large public general hospitals in England. Such exclusiveness was in his (the Chairman's) view unworthy of justice-loving Englishmen. He felt sure that the majority of the governors of the hospitals referred to would cease to brand by their advertisements the Irish Fellows as inferior to their English brethren if the matter were brought to their notice. They had altered the exclusive rule in several cases when the association showed them how unjust it was to Irishmen who happened to be practising in England, and future efforts of a similar kind would, he felt sure, be equally successful. The honorary secretary of the Development Committee having stated what the latter was doing the meeting adjourned.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE duties of a medical officer of health were first specifically laid down in a minute of the General Board of Health dated December 20th, 1853; included in them was the production of an annual report "on the sanitary transactions of the year (especially as to the removal of former evils, or the creation of new establishments for sanitary purposes), on whatever incidental changes have been wrought in the physical state of the district, and on the sickness, mortality, and atmospheric conditions of the period; using for the report, as far as convenient, tabular forms and other compendious arrangements; and in every case where he refers to an existing evil stating what sanitary rule, measure, or appliance he deems best for its mitigation." This obligation to make an annual report was repeated from time to time in General Orders issued by the Local Government Board; in the latest of these, which was dated December 13th, 1910, there is a long list of matters concerning which information is required to be given in the report. In addition to these statutory instructions the Ministry of Health, in two successive years, has issued an eight-page foolscap memorandum "as to contents and arrangements of the annual reports of medical officers of health." The task of compiling his annual report has become very onerous and takes up a great deal of time which could more profitably be spent in other directions, and in our opinion the time has come when the Ministry of Health should seriously consider the desirability of lessening this task. Before discussing the means by which this may be brought about let us inquire what is the object aimed at in producing the report. It is in effect a chronicle of the work of the medical officer of health and his department during the period to which it refers, from which is to be deduced the present and future requirements of the district. The report is primarily for the information of the local authority—to whom, indeed, it is addressed—and of the inhabitants, who are entitled to be informed periodically of the sanitary condition of their district. Secondly, it is for the use of the Ministry of Health, and for this reason it is necessary to include in the report details which would be redundant if it were intended for local perusal alone. Thirdly, except when the report relates to a county borough, it is for the information of the county council in order that that body may ascertain whether the Public Health Act (1875) has been properly enforced or if any other matter affecting the public health of the district requires to be remedied by appropriate action taken under Section 19 of the Local Government Act, 1888. Many reports already issued could be abridged and still comply with the above requirements. Moreover, much of the information asked for in the Memorandum of the Ministry of Health does not vary year by year, and no good purpose is served by repeating it. For example, an account of the physical features and general character of the district, of the social conditions and the chief occupations of the inhabitants might very well be given every five or six years instead of annually as at present, and in other ways which we need not indicate in detail the reports could be curtailed without in any way decreasing their value. The greatest economy both of time and money would perhaps be achieved by the issue of a short report annually and a more comprehensive one every five years—say, in the year following the census, for we trust it may be assumed that the Ministry of Health will make use of the power given by Parliament to take a quinquennial census. The Ministry might formulate the minimum requirements and leave it to individual medical officers of health to give such additional information as local conditions render necessary. We cannot leave this subject of annual reports without a reference to the great need there is for what may be termed better sub-editing. The absence of an index to its contents makes a valuable report useless for reference, and yet of the last twenty reports we have received only nine are provided with an index, and one of these consists of 190 foolscap pages. About the same number are undated, one is unsigned, and throughout the pages of this report there is no indication of the name of its author. Another report is addressed to the "District Council," but we are left to guess whether the document refers to an urban or a rural district. Loose phraseology is found where it is least expected, and statutory enactments are given titles which have never belonged to them, so that we come across the "Dairy and Cowsheds Act" instead of the "Regulations under the Dairies and Cowsheds Orders," and the "House Inspection Act" instead of the "Housing Regulations." The lack of cross references detracts very much from the value of many reports; it is irritating, for instance, to be referred to "a former report," or to "another part of this report," or to be told that the author has dealt with his subject "elsewhere" without any further indication. There is perhaps no better way for a

medical officer of health to improve his own report than by reading those of his colleagues, more especially if he does so in a critical spirit, and with a desire to benefit by the defects he discovers.

THE Voluntary Hospitals Commission, appointed by the Minister of Health in accordance with the recommendation of Lord Cave's Committee, held a preliminary meeting on July 14th; a second meeting took place on July 26th.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Lord Cave's Report on Hospital Finance.

Debate in the Lords.

VISCOUNT BURNHAM, in the House of Lords on July 20th, raised a debate on the Cave Report on Hospital Finance by asking what further steps the Government proposed to take to put voluntary hospitals on a more satisfactory footing. Speaking in no antagonistic spirit to the Committee, he pointed out that its report was provisional, and designed to meet urgent necessities. He thought there was a clear case for the renewal of the mandate of this Committee, and for an extension of its reference. What had been done now would not do much more than cover the year's deficit, and the causes lay so deep that, unless the problem be promptly considered as a whole, the waste of public money would be great. He rejoiced that the Committee had emphatically approved the voluntary principle, but there was a clear case for asking the Committee to report on two subjects, the consideration of which was long overdue. These were the relation that the system of National Health Insurance bore to the rest of the problem of national health, and the relation of the Poor Law infirmaries to the voluntary hospitals.

With regard to insurance (Lord Burnham continued) Lord Cave's Committee definitely said that hospital benefit was not provided for in the Act of 1911 or amending Acts. The Committee took the view that all that the insured person could expect was the treatment and relief the general practitioner could give. But that, he thought, was an understatement of the case. The Act laid down that approved societies, as well as municipal and local authorities, could contribute to the support of hospitals. It was recognized that hospital treatment was necessary as part of the general relief given to insured persons, many of whom were well within the category of the "sick poor." He thought the Committee had not appreciated how the burdens of hospitals had been increased by the National Insurance Act. The health of the country had been vastly bettered and national welfare greatly advanced by the operation of the Act, and hospital treatment had been absolutely necessary to the attainment of these results. The Exchequer was getting indirectly the benefit of a vast amount of hospital expenditure, which would neither have been necessary nor demanded but for the Insurance Act. He believed that a clear case existed for obtaining a contribution out of the surpluses of the approved societies such as might not be possible at present without an amendment of the law. Lord Cave's Committee rejoiced that one approved society was applying part of its surplus to this purpose. It was doing so voluntarily and legally under the Act. What was good in the case of the National Deposit Friendly Society would be good, he thought, in the case of the other approved societies. But many of them preferred, with the keen competition that existed in obtaining members, to distribute their surplus in casual benefit. He could not believe that when the changed conditions of medical and surgical treatment were considered the Ministry of Health would be satisfied to leave the hospitals without a large contribution from such great surpluses. Moreover, during the war, the bulk of the people, especially those who had served in the Forces, got to demand a higher standard of medical treatment. They were not content with the panel doctor, but frequented the out-patient department of the hospitals in greater numbers than formerly, and thus, even though in some cases they paid a small fee, the insurance fund benefited by being relieved of demands upon it. He asked, therefore, for a further investigation of the problem. It was unlikely, in London and the London area, that the system of mass contributions would bring very large receipts. The twelve general hospitals with schools attached did a great work not confined to their own area or the bounds of the metropolis, and they provided means of enabling medical students to obtain the necessary practical demonstrations. It was left also for them to take upon themselves the whole of the medical research, which was increasing in importance every day. These hospitals, with others in Edinburgh and other great cities, had enabled medical skill and genius to be developed, so that in these matters we were ahead of the rest of the world. There was a clear case—because the equipment of the general practitioner was being raised each year by the experience of what was being done in the hospitals, and by the knowledge imparted to him directly or indirectly through the medical journals—that they should receive fair payment out of approved societies' surpluses.

Lord Burnham next dealt with the relation of the Poor Law institutions to the voluntary hospitals as requiring further investigation. He quoted from the Report of the Royal Commission on the Poor Law in 1909, to show that it was even then held to be a matter of urgency. The report also brought out that in the past local authorities had contributed considerably to the voluntary hospitals, because these authorities had been responsible for the treatment of some of those cared for by the hospitals. He would remind the House that that report also brought out the fact that Poor Law infirmaries were doing work, especially in dealing with casualties, which was supposed to be performed by voluntary hospitals, and that the Committee had hoped there might be closer co-operation between the voluntary hospitals and these State-supported hospitals. By the use of these Poor Law infirmaries up to a point a saving would be effected.

The Earl of Onslow (Parliamentary Secretary to the Ministry of Health) complimented Lord Cave's Committee on their admirable report, and remarked that the British Medical Association, at its congress at Newcastle, endorsed the principal finding that the voluntary system should be maintained. The Government had fully considered the recommendations and had issued a White Paper as to the course to be taken upon them. The constitution of the Commission would be as advised in the report, except that one more member had been added for Wales, in the person of Lord Clwyd. It was hoped to get the most representative committees—namely, representatives of all those who were in touch with the voluntary hospitals—representatives of the medical profession, of the hospital boards of management, of employers and employed, of local authorities, and of women. In the last-named category they had a field of administrators as yet not drawn upon. He referred especially to ex-commandants of hospitals.

Dealing with the financial aspect of the question, Lord Onslow said that the Government had decided not to contribute towards building schemes at present, when hospitals were not paying their way and while the cost of building was steadily falling. The Government, therefore, did not accept the recommendation of Lord Cave's Committee to make grants on the pound-for-pound system for hospital expenses, but they had agreed to contribute £500,000 towards the deficit of £1,038,318 on running expenses. As to the immediate work of the Commission, it would be their duty to make such advances from the fund as would enable hospitals—mainly in London, he thought—which had been obliged to close beds, to carry on. They had already asked the authorities concerned to make inquiries with regard to hospitals which were in immediate need of assistance. He wished to say emphatically that the Commission and the local committees were in no way intended to exercise control over the hospitals. The Government wanted to save the voluntary system, but not in any way to run the hospitals. The intention was that the grant should be so administered that its necessity should disappear as quickly as possible. The whole question of hospital areas, sufficiency of beds, etc., would be considered first by the committees and then by the Commission. The question of building extension would come before the committees as a means of carrying out those extensions, and would be reported upon by them, as well as the necessity for beds in various areas; and that brought in the point how far Poor Law infirmaries could be utilized. There were 92,000 beds in the Poor Law infirmaries, but many were attached to workhouses. Of the total number of beds, an average of 20,000 were vacant during the winter and 30,000 during the summer. There were 36,607 beds in separate infirmaries, and on January 1st last year 9,150 of those beds were vacant. He did not know how many were suitable for the reception of patients; some might be in districts adequately served by hospitals, and other matters had to be considered. But the accommodation in the infirmaries might prove a great relief to the hospitals. Some arrangements had been made to that end, but the existing statutes imposed certain limitations on the powers of Poor Law guardians, and it would be necessary to legislate before these difficulties could be entirely removed. What Lord Burnham had said would be most carefully considered; but he should be disinclined to press the Commission to ask the local committees to submit proposals until they had fully considered local circumstances.

As to approved societies, Lord Onslow recalled that the Cave Committee had issued an interim report recommending that the Ministry should make any necessary amendment in the Regulations under the National Insurance Act, and should bring the matter to the notice of the societies. The Ministry had done this, and the Committee of the Approved Societies and hospitals were in consultation on the subject.

Lord Somerleyton, speaking from experience in connexion with the Central Fund for Hospitals in London, expressed warm appreciation of the report. He thought that the central authority for London would obviously have to take into consideration the availability of Poor Law infirmaries for hospital use.

Lord Dawson of Penn said that all who had read the report of Lord Cave's Committee must have felt that its members were firmly imbued with the need for economy, and that their advice as to grants was actuated by the urgent necessity of the hospitals. When their first recommendation of one million was reduced by half by the Government, it was clear that the latter made this cut only on account of the cogent pressure of financial difficulties. But in view of such reduction he thought the question arose, Would it not be wise to reconsider the basis of distribution? If one took roughly the number of hospitals which should be helped, and put side by side with them the

money available, it would be seen that the sum thus divided amounted to very little in individual cases. He thought it was an important matter to put the teaching hospitals of the country into an entirely different schedule. Their work and functions were entirely different from those of the other hospitals. The voluntary hospitals throughout the country had each a local function. They were, no doubt, institutions of the greatest utility; if they were closed or if their work deteriorated it would be a great calamity to the district in which they were situated, but the calamity would be limited to that district. If, on the other hand, anything interfered with the efficiency of the teaching hospitals, the whole nation would suffer. These hospitals provided not only the doctors and the nurses for the coming generation, but they set the standard of work, and anything which impoverished them lowered that standard. This might easily happen in a short space of time, so as to lower the standard of medicine in this country for twenty years. He urged, therefore, as the money was limited, that far more important than to consider the needs of this and that hospital—and he said this without prejudice, because at his own hospital 200 beds were closed—was to consider the question of the teaching hospitals. He supposed they numbered about thirty throughout Great Britain—he thought there were twelve in London.

Lord Dawson then took up the subject of the Poor Law infirmaries. That was a question, he considered, which should not be allowed to rest longer. While they were waiting for the spare time, which never came to Governments, for trying to solve the problem of the Poor Law, this country was prevented from utilizing to the extent it could the resources of these institutions. Lord Burnham had referred to the sick poor, but that was not a wide enough view to take. All were poor now, and many were sick. It was not only the poor people technically called sick who needed institutional treatment; the number requiring it steadily increased year by year. The whole tendency of modern life was to make such an increase. The reasons were various and worthy of attention. First of all there were the scientific reasons. The diagnosis of disease was no longer the work of a single individual; it was done by the co-operation of several. Co-operation required equipment and organization, and these things required provision. The next was the economic reason. It was a curious thing that every time knowledge advanced it increased the complexity in investigation of illness, and this increase of complexity added to the cost. Every new invention cost an institution an increase in expenditure. So the cost of treatment went up, and the number of persons who could defray the whole cost of their illness went steadily down. The only solution therefore of the efficient investigation of disease was the increased provision of institution treatment. The third was the social reason. Homes were much more difficult to manage than they were, and the more narrow and restricted the income the greater the difficulty. In some parts of the country, if the lady of the house wished to have a baby the servants very often desired to leave. Domestic difficulties were so great that that tendency would force an increasing number of persons into institutions for treatment. He thought that the infirmaries of the country could be used to assist voluntary hospitals in two ways. In certain districts they could by arrangement be made to supplement the work of the general hospitals, but it should be a condition that they should not start business on their own. That was the criticism directed against the recent suggestion at Bradford, which aimed at starting a hospital system of its own in its infirmary—not to supplement, but rather to rival the work of the voluntary hospitals. That was an evil which led to great expense. He knew of nothing so calculated to destroy the voluntary principle as to allow a Poor Law hospital, supported by the rates, to start as a rival institution. Another reason why such institutions should supplement and not supplant was a professional one. The medical talent of a district nearly always centred round the voluntary hospitals. What contained the greater talent should give a lead in treatment and policy. The second way in which the infirmaries could be used was by setting aside wings or plots of beds for paying patients. Something must be done to provide for the very large class of people with small means. Here were infirmaries actually in existence which could be adapted at a small cost. Beds could be opened on a self-supporting basis for people with small means. There were certain pitfalls to be avoided. All the guardians should do would be to provide the hotel part of the business and the nursing equipment and machinery. The important thing was that the patient's own doctor should follow the patient into the institution. Thus would be supported what he considered the central principle of all medical progress in this country—the provision of the fabric side by side with the freedom of relations between doctor and patient. If they allowed the guardians to provide medical aid they would be on the slippery slope of the municipalization of medicine.

Lord Dawson next came to what he called the larger policy. Despite the straitened financial circumstances of the country, it would be very helpful if the Ministry of Health would lay down the outlines of a policy to guide the health services, and especially the curative services, during the lean years when expenditure must be cut down to a minimum. He suggested there were two lines to be followed: to maintain all essential services, and to utilize these lean years to lay down the foundation of a constructive policy to be commenced when conditions admitted it. The utilization of infirmaries might be carried through, as was done at Manchester, with the complete co-operation of the medical profession. As for the difficulties which stood in the way of boards of guardians, who were ready to make arrangements, he suggested that the Government should introduce a short bill which would, he thought, be non-controversial and would settle doubtful points. At the present time he believed it was doubtful whether a board of guardians could legally charge more than the exact cost of any inmate. It had been found, too, that where infirmaries were attached to hospitals it had been very difficult to transfer patient from the hospital to the infirmary, if the patient lived in another Poor Law area. Troubles of that kind might be met by legislation.

Viscount Cave was confident that the Hospitals Commission would be able to take a wide view of these services, and after the experiences of a year or two might be in a position to make recommendations which would have a permanent effect on the future health of the country. He wished that the Government had found it in their hearts to recommend a larger grant. All the members of his committee were "anti-waste" members, and had cut down their recommendations as much as possible; but he was sure the hospitals would do their best with what the Government would provide. A suggestion had been made to him that this half-million was for the current year, and that a question might arise again with regard to the year 1922. It was a point he was content to throw out without desiring an answer at the present time. He agreed with Lord Burnham that the insured person had no less claim to hospital treatment than those uninsured; and that the insurance societies owed a great deal to hospital work, and were morally bound to recognize that help by making contributions to hospital funds. With regard to co-operation between Poor Law infirmaries and the voluntary hospitals, Lord Cave said he knew that they differed very much in quality. In some small infirmaries attached to workhouses the duties were not, perhaps, very adequately carried out, but in great infirmaries like those of Paddington, Lambeth, or Birmingham admirable work was being done. The committee had been struck with the amount and quality of the work. These institutions could supplement what was being done in the hospitals. If some small modification of the law was needed to enable co-operation to take place in the fullest degree he hoped the Government would not wait for the general reform of the Poor Law to secure this.

Medical Research Awards.

Mr. Briant inquired, on July 21st, whether, in view of the vital importance of medical research to the health of the nation, there could be provided a fund from which could be paid awards for discoveries or inventions which contributed to the general health of the community, and which were placed gratuitously at the service of the public—such awards to include pensions for those who had become totally or partially incapacitated in the course of research; and pensions for dependants who needed it. Mr. Balfour (Lord President of the Council) said he saw no grounds for differentiating medical from other forms of scientific research which might be of equal value to the community, and he doubted whether any system of pecuniary rewards would, in the long run, be beneficial to science or medicine. The difficulty of apportioning merit for even the greatest of discoveries was often overwhelming; monetary rewards would lead to jealousy instead of co-operation among research workers, and might prove to be an incentive to work for results which were sensational rather for the advancement of scientific knowledge. The question was fully discussed at a deputation which he received on March 7th, 1920, at the Privy Council Office. Mr. Briant asked whether Mr. Balfour recognized that in one branch alone—research into the value of *x* rays—a great number of medical men had lost their lives, and their dependants had got no recognition from the nation. Mr. Balfour said he believed that in the early days of *x*-ray investigation some medical men lost their lives. Their dependants were, of course, eligible for pensions. The Royal Bounty Fund was available for the purpose. Whether this fund was large enough was a question to which he was not competent to give an answer.

The Licensing Bill.

Not the least remarkable fact in connexion with the Licensing Bill introduced for the supersession of the Central Board of Control is that it obtained in the Commons, on July 23rd, a second reading without a division. The proposals represent—subject to certain changes made by the Cabinet—a compromise reached at round table conferences of parliamentarians of opposing views as to liquor trade restrictions. These meetings were held under the chairmanship of Sir Gordon Hewart (the Attorney-General), who produced the measure for the Government.

As regards London, it is intended that the hours of opening, which for week-days has been from 12 o'clock to half-past 2 and from 6 to 10 in the evening, shall be from half-past 11 o'clock to 3 in the afternoon and from half-past 5 until 11 o'clock at night; and that for hotels and restaurants an hour's extension shall be given for the sale of drinks with food, the houses to remain open until half-past 12 o'clock—

that is, for half an hour after the limit of time fixed for the sale of liquor.

For districts outside the metropolis the hours of opening are to be from half-past 11 o'clock until 3 in the afternoon and from half-past 5 in the afternoon until 10 at night; there is the same concession for hotels and restaurants of an extra hour.

For Sundays the permitted hours for the whole country are to be between half-past 12 and half-past 2 o'clock and between half-past 6 and 9 o'clock in the evening—subject to the operation of the Sunday Closing Act for Wales and Monmouthshire.

It should be said that while these times are indicated the fixing of the hours of opening and closing is left to the justices so long as they do not go beyond the maximum limit of nine hours in the metropolis for weekdays and eight for the rest of the country, and five hours for Sundays, with the concessions already noted for hotels and restaurants. The restriction on the strength of spirits is to be removed. As the bill stands the number of hours to be permitted for Scotland would be the same as for England; but as Scotland has hitherto had a less number there will probably be an amendment by Scottish members of the committee with the object of maintaining this difference. The powers of the Board of Control as to State management are to be vested for England and Wales in the Home Secretary and for Scotland in the Secretary for Scotland. The phrase used in this connexion is "for so long as Parliament may determine."

Infectious Diseases Notification Fee.

Mr. Jellett asked, on July 22nd, whether, in view of the serious loss involved to medical practitioners in Ireland, immediate steps would be taken to restore the fee to be paid for the notification of infectious diseases to its pre-war amount of 2s. 6d. Sir H. Greenwood said that having regard to the temporary character of the provisions of the Local Government (Emergency) Provisions Act, 1916, under which the reduction of fees was affected, no special action appeared to be called for at present.

Death Certificates.

Sir A. Mond, in reply to Mr. Waterson on July 19th, said it was not possible to state the number of deaths certified by registered medical practitioners, or the number which were not so certified. The available statistics were derived from death registration; and a death which was the subject of an inquest was registered on the certificate of the coroner whether it had, or had not, been previously certified by a registered medical practitioner. The figures of death registrations respectively on the certificate of a registered medical practitioner, on the certificate of a coroner's inquest, and without either a medical certificate or an inquest, were as follows:

	Registered on Certificate of Registered Practitioner.	Registered on Coroner's Certificate after Inquest.	Uncertified Deaths on which no Inquest was held.
1911	483,944	37,200	6,666
1912	443,938	36,668	6,333
1913	462,396	36,419	6,160
1914	472,768	37,695	6,279
1915	515,441	39,128	7,684
1916	463,929	36,760	7,528
1917	456,666	34,704	7,552
1918	570,605	33,012	8,244
1919	466,017	31,488	6,698
1920	429,426	30,995	5,709

On a further inquiry Sir A. Mond said that registrars of births and deaths had been required, since March 2nd, 1914, to report all cases of uncertified deaths to a coroner, but complete information as to the number reported in the previous years was not available.

The Length of the Session.

Mr. Chamberlain, in announcing, on July 26th, the arrangement of business to be made with the hope that the Prorogation might take place not later than August 26th, reminded the House that the passage of the Licensing Bill and of the Criminal Law Amendment Bill must depend upon general assent. Amongst the measures which he stated would be dropped was the Clinical Thermometers Bill, introduced last week.

The Supply of Optical Glass.—In Committee on the Safeguarding of Industries Bill, on July 20th, Mr. Acland moved to leave out "optical glass" from the schedule of goods chargeable with duty. He had yet to learn, he said, that the protection to be given in regard to optical glass would enable the industry to be set up in this country on anything like the scale on which it was conducted on the Continent. Sir Philip Lloyd Graeme, Parliamentary Secretary to the Board of Trade, urged in reply that if the optical glass industry in this country was not protected, we could not begin to build up a scientific instrument industry, and that when we were again lauded in war, we should be cutting off the eyes of the army and navy and air services. Sir Donald Maclean held that to develop the industry we should need a special class of workman, and the proper course of the Government was to subsidize a sufficient number of men in a specific place and to keep them going at an adequate standard of excellence and otherwise leave the whole trade free to the world. He read an appeal signed by forty-two scientists representing universities and university colleges through England, Scotland and Wales, being interested in promoting chemical research and scientific inquiry: they protested against the restrictions of free imports embodied in the bill. They maintained that this policy would ultimately hinder the advance of scientific knowledge in this country and place us at a disadvantage with Germany. Dr. Murray said that a scientific optician in a city had told him that he was trying to patent an optical instrument which would be most valuable in scientific research in protecting the eyesight of those who had to use optical glass. But the price of optical glass in this country was so high as to make the invention impossible as a commercial proposition, at any rate until he could find out if he could get the glass on the Continent. This tariff of 33⅓ per cent. would fall upon much that was used in the hospitals and so put a serious burden upon them. It would be a tax on learning in prejudicing the position of the students. Sir William Pearce related the urgent circumstances under which the Government on the outbreak of war encouraged British firms to make the necessary output, and he held that in all the circumstances the tariff was advisable. Dr. F. E. Fremantle also defended the proposal. For the medical and scientific work which was going on in Great Britain it was desirable to have the manufacturers of optical glass working out their problems side by side with those who were working in laboratories. He did not think that it would exclude the importation of optical glass, but it would give a chance to our manufacturers to carry on. Mr. A. M. Samuel, Sir J. Greig, and Mr. G. N. Barnes supported the Government's intention, and on a division the amendment was rejected by 200 votes to 77. Mr. A. Williams then moved another amendment to exclude "ophthalmic lenses." Sir P. Lloyd Graeme answered that the men who were engaged in the manufacture of these things were the only men to whom the Government could turn in war time, and therefore they should be maintained. The amendment was rejected by 202 to 75. Mr. Hogge next moved to leave out the word "microscopes." Sir P. Lloyd Graeme renewed his previous argument. The time above all others when microscopes would be needed was when research work was being carried out in war. In past wars an enormous number of diseases had cropped up, and it had been essential to make the most minute examination of bacteria. Many men's lives had been saved by injection of specially prepared serum calculated to fight the bacteria. These serums would not have been prepared except by the use of the microscope. The amendment was rejected by 202 to 74.

The Grant for Hospitals.—Mr. Briant asked, on July 20th, whether if grants out of public funds were made to hospitals there would be provision for representatives of the public to serve on the governing bodies. Sir A. Mond said he would bring the suggestion to the notice of the Hospitals Commission, but he doubted whether a non-recurrent grant would justify requiring hospitals to make a permanent change of this kind in the constitution of their governing bodies.

Dr. Addison's Resignation.—A vote of £15,245,098, to complete the grant for the Ministry of Health for the current year, was taken in Committee of Supply on July 21st, to allow of a debate on the changed policy of the Government in regard to housing, and the circumstances of Dr. Addison's resignation of the office of Minister without Portfolio. Mr. Asquith moved the reduction of the vote by £1,000, to criticize the Government on the ground that it was not fulfilling its obligations, and this motion was seconded by Mr. Clynes, the leader of the Labour Party. The case of the Government, as put by Sir Alfred Mond and Mr. Lloyd George, was that the present commitments would occupy the building trade in England and Wales for eighteen months, and in Scotland for nearly two years; that the financial condition of the country absolutely required a halt in the making of fresh contracts; and that the effect of the decision would be to make prices easier. Dr. Addison, in the course of an earnest speech, insisted that the Government was making a great betrayal in stopping its housing programme, and that it was economizing to the detriment of the health of the people, while it was spending vast sums in Mesopotamia and in other ways. There would be, he said, a very grave waste in the compensation which would have to be given to local authorities and various persons in respect of preparatory work such as the laying out of roads and the making of sewers, undertaken in anticipation of schemes going through. Dr. F. E. Fremantle supported the Cabinet in the course it was taking. If housing contracts were to be made with the determination to see schemes through whatever they cost, if builders were to be sure of their profits and labourers of their wages at whatever expense, it was inevitable that they would put as little work into the business and get as much profit out of it as possible. With the sharp cut now being made labour would realize that it had got to put in work and employers to take diminished profit.

Then it might be possible to get better conditions, and it would be for the local authorities to produce their schemes under which such losses as had to be borne would be borne to a considerable extent by the local authority, who would thus be interested in seeing that it got value for money. Mr. Asquith's motion was negatived by 254 votes to 67.

Income Tax Assessment.—On report on the Finance Bill on July 19th, Sir Frederick Banbury moved the omission of the clause introduced into this year's bill by the Chancellor of the Exchequer "For the purpose of removing doubts," in regard to the three years' average assessment. It is a declaratory statement to the effect that certain reliefs were actually not continued in force for the year 1920-21 but were repealed and stand repealed. It further lays down that where through decisions of Commissioners any persons were relieved under the impression that the relief was legal, they are to pay the back money. It will be remembered that the whole controversy arose on the question whether a repeal of Sections 43 and 44 of the Income Tax Act of 1918 was necessary, or whether the fact that they were not included in the Act of 1919 carried repeal. Sir Robert Horne insisted that there was really no room for the misapprehension which had arisen, but in the debate opinions differed on this subject. On the division the clause was retained by 244 to 76.

Naval and Military Hospitals.—In reply to Commander Bellairs, on July 22nd, Mr. Amery stated that the total possible number of beds in Haslar Royal Naval Hospital was 1,118. During the period January 1st to June 30th, 1921, the maximum number occupied was 549 and the minimum 370. In reply to Commander Bellairs Sir L. Worthington Evans stated that there were 200 beds in Cosham Military Hospital; the maximum number occupied during the first six months of 1921 was 104 and the minimum number was 39—on one day only. The distance from the Naval Hospital of Haslar was twelve and a half miles by road and seven by road and ferry.

Criminal Law Amendment Bill.—When the second reading in the Commons of this measure (after passage in the Lords) as noted in last week's issue, was taken in Standing Committee on July 26th, Mr. Rendall was chairman. On Clause 1 (consent of young persons to be no defence) an amendment by Major Christopher Lowther to alter the age from 16 to 15 was rejected. Mr. Rawlinson moved an amendment to add to the clause the words, "but the party so consenting shall be guilty of a misdemeanour." Mr. Shortt (Home Secretary) and Dr. Farquharson (on behalf of the promoters of the bill) opposed the qualification as cutting at the value of the measure. Earl Winterton thereupon proposed that the qualification should apply in cases of young persons 15 years of age. He argued in favour of this limited provision as a protection against blackmail. On a division the amendment thus constituted was carried by 17 votes to 12. On Clause 2 an amendment by Mr. Rawlinson to omit Subsection 1 (laying down that reasonable belief that a girl was 16 years of age should be no defence under Sections 5 and 6 of the Criminal Law Amendment Act, 1885) was rejected by 21 votes to 4. On the motion of Sir Ryland Adkins, Subsection 2 was omitted. This proposed to extend to twelve months after the date of an alleged commission of an offence, the period within which proceedings might be taken. On Clause 3 (to enlarge the maximum penalties that might be imposed on brothel keepers), the Committee accepted an amendment, submitted by Sir Robert Thomas, that such person, if not a British subject, might be, on conviction, recommended for deportation, in addition to other punishments. A new clause, brought forward by Sir Robert Thomas, that any alien found guilty under summary jurisdiction of procuring, or attempting to procure, might be recommended for deportation, was also agreed to.

War Pensions Bill Through Committee.—The War Pensions Bill was taken in Grand Committee in the House of Commons on July 19th and 20th. Clause 1 as amended, requires the Minister, before making an Order setting up a War Pensions Committee, to consult persons and bodies, including local committees affected thereby, and to set forth the conditions of appointment, the conditions of removal and the period of office. The Minister (Mr. Macpherson) said that he intended that a scheme should be drawn up by an advisory committee composed mainly of men and women, independent of the Ministry. In Clause 2 amendments were inserted, at the instance of Sir Henry Harris and Mr. Neville Chamberlain, to include among the functions of the War Pensions Committee, the making of recommendations as to the administration of pensions within their area; the reception of reports from officers as to the state and progress of applications in the area, and the securing of assistance and co-operation of voluntary workers. A new clause was inserted, requiring the Minister to appoint a central advisory committee consisting of officers of the Ministry (Local and Central), ex-Service men, and representatives of the War Pensions Committee.

Arrears of Insurance Payment.—Sir A. Mond, on July 20th, informed Mr. Jesson that insured persons who had fallen into arrears through unemployment were given an opportunity of making a comparatively small payment to avoid reduction or suspension of benefit. In view of the great amount of unemployment during the past twelve months the time during which such payments might be made had been extended to November 30th next, and approved societies had been empowered to make a special concession in the case of members who had been unemployed for more than twenty-six weeks in the year.

Disability Retired Pay.—Colonel Mildmay asked, on July 21st, whether pensions granted to regular officers under certain Articles were regarded as disability pensions or as service pensions, in cases where the officer's service had been too short to entitle him to a pension unless previously passed as permanently unfit. Mr. Macpherson said that retired pay under the Articles quoted was regarded as disability retired pay, but for purposes of relief from income tax under the Finance Act, difficulties of interpretation had arisen on which it had been necessary to obtain a legal opinion. It was hoped to adjust all doubtful cases shortly. The Royal Warrant of July 2nd, 1920, allowed of the increased part-pay rate laid down by the War Office in 1919 being given under certain conditions and without any additions of any kind as minimum disability rates to regular officers disabled by service in the great war. As from January 1st, 1919, a bonus was allowed to an officer in receipt of a wound pension and in receipt of the 1914 half-pay rate, the pension being reckoned at 20 per cent. of the sum of the two awards, subject to a maximum of £300 a year. In other cases of regular officers disabled by war service a disablement addition was added to the 1914 rate, together with a bonus of 20 per cent. reckoned on a corresponding rate for a temporary officer and subject to the same maximum.

Health and Unemployment.—Sir B. Chadwick asked the Minister of Health, on July 21st, whether, in view of the official report of his chief medical officer calling attention to the already apparent traces of the lowering of vitality in the health both of mothers and little children, due mainly to unemployment and its effects, he was taking any special precautions to ensure assistance, so far as it could be given this winter, to those victims of industrial unrest. Sir A. Mond replied that he was having this matter carefully watched, and would give whatever assistance was possible within the limits of his financial resources.

Medical Appeal Board Chairmanship.—Mr. Hayward asked whether in the Easington District, County Durham, appeals against decisions of the medical board were heard before another tribunal having the same chairman as the medical board whose decisions were being appealed against. Mr. Macpherson replied that the personnel of a medical appeal board should be entirely different from that of the board whose assessment was challenged. He was having inquiries made.

Sanitary Condition of Post Office Buildings.—Mr. Wignall asked, on July 21st, whether in 1920 a special officer was appointed to visit post office buildings and report upon their sanitary conditions; and whether the staff had, in many instances, complained, and the local medical officers had also reported direct to the chief medical officer of the post office. Mr. Pike Pease said he was unaware that many post offices were in an insanitary condition. In some cases the inevitable postponement of structural alterations and building works, had delayed the carrying out of desirable improvements, but cases of complaint by the staff, or representations by the medical officers, were the subjects of investigation. No special officer had been appointed to visit offices and report upon them.

Wages in Hospitals.—Mr. Thomas Griffiths asked, on July 26th, whether the attention of the Secretary to the Treasury had been drawn to a resolution passed by the Pharmacists' Branch of the National Drug and Chemical Union to the effect that no grants from public funds should be made to any hospital or other institution unless the provisions of the fair wages clause were observed in the payment of the employees, and whether he would make the fair wages clause applicable in connexion with grants to hospitals. Sir Alfred Mond (Minister of Health) said he would bring the matter to the notice of the Hospitals Commission.

Milk Supplies.—On July 18th the Minister of Health stated, in reply to Major Kelly, that local authorities are supplying milk in considerable quantities to children under five. Subject to conditions under the Maternity and Child Welfare Act, where liquid milk cannot be readily obtained, dried milk is provided. He had no evidence of such a shortage of liquid milk as to make further action necessary.

Small-Pox in Glasgow.—Mr. Munro informed Mr. R. Young, on July 18th, as to the outbreak of small-pox in Glasgow in 1920 that no case in the list of unvaccinated persons had been vaccinated before exposure to infection. Of the 128 cases classified as unvaccinated, 19 who were contacts with previous cases were vaccinated during the outbreak, but after exposure to infection.

Anthrax in Brushes.—The Minister of Health states that samples of imported shaving brushes have been examined from time to time, but so far only brushes of Japanese origin have been found to be infected with anthrax. The further importation of Japanese shaving brushes was prohibited in February, 1920, by an Order in Council, which remains in force.

Shell Shock Cases.—In reply to Brigadier-General Surtees, on July 12th, Sir A. Mond said that the Board of Control was unaware that any ex-service men were confined in asylums or hospitals for the insane, other than those men who had been certified as insane, amongst these were cases in which insanity had supervened upon shell shock. There were several neurological hospitals under the control of the Ministry of Pensions where ex-service patients whose mental symptoms did not amount to confirmed insanity, were being treated.

England and Wales.

BRITISH HOSPITALS ASSOCIATION.

VISCOUNT CAVE and the members of the Voluntary Hospitals Committee were entertained to luncheon on July 20th at the Royal Automobile Club, London, by the British Hospitals Association, Sir Arthur Stanley, president of the association, presiding.

The Chairman said that the British Hospitals Association wished to express to Lord Cave and his committee its gratitude for the work the committee had done on behalf of the voluntary hospitals. The committee had gone to the heart of the matter, and had tried to find the hospitals a way out of their difficulties. Speaking for himself, Sir Arthur Stanley said that he was one of those who had always believed that, given a little time, the voluntary system could reassert itself and become as successful again as it was in the past. The fact that time was being given was in no small degree due to Lord Cave and his excellent committee. Mr. Wade Deacon regretted that the Government had not seen its way to adopt the report of Lord Cave's Committee in its entirety. Instead of giving a million for each of two years and a quarter of a million for improvements and alterations the Government had given only half a million altogether, and that not as a free gift but on the understanding that pound for pound was to be raised. He thought it would be wise at once to fix a basis on which the money would be distributed. Viscount Hambleden considered that some of the suggestions made by Lord Cave's Committee had already been considered by representatives of the London hospitals and of King Edward's Hospital Fund, and he hoped that before long the upward curve in receipts would prove that the hospitals could act in the way Lord Cave's Committee had recommended. Viscount Cave, in responding, said that the Voluntary Hospitals Committee had had very great advantages, for the problems with which it was entrusted interested many people; it had had the support of the great body of those who had done real work in connexion with the hospitals, and had had also the constant support and help of the Ministry of Health. He was interested to learn that three of the London hospitals were combining to make an experiment of what was known as the "Sussex scheme." The great mass of the population had the duty of contributing, as he had found they were willing to do, their share towards the maintenance of the hospitals, but employers of labour should not forget that they also had an obligation. He believed that if hospitals were to prosper they would have to work together more in the future than they had in the past. The Marquess of Linlithgow proposed the health of the Chairman and of the British Hospitals Association, and the Chairman, in responding, mentioned the valuable work of the Secretary to Lord Cave's Committee, Mr. L. G. Brock, who was to continue as secretary of the new Commission.

LONDON COUNTY COUNCIL.

The London County Council has appointed Mr. E. S. Littlejohn, M.R.C.S., L.R.C.P., to be resident medical superintendent of the proposed Manor institution for defectives. The use of the Manor mental hospital has been certified for the reception of 1,000 cases of mental defect under the Mental Deficiency Act. The remuneration attached to the appointment is £1,000 a year (on pre-war economic conditions—that is to say, carrying a bonus), with an unfurnished house, and rates, taxes, and water supply free. The Council, which had previously decided to grant occasional daily leave for medical officers at mental hospitals in order that they might attend a course for a diploma or degree in mental disease, has now decided that this study leave can be granted to cover the taking of a diploma or degree in any branch of medical or sanitary science; the necessary leave, with full pay, for the period of examination is also granted. The by-laws for the regulation of licensed establishments for massage or special treatment in the County of London have come up for revision, and the London County Council is making application to the Home Secretary for confirmation of new by-laws. These follow generally those previously in force, except that one of the by-laws has been extended to prohibit the employment of persons of known immoral character and the giving of treatment behind locked doors. An attempt was made to frame a by-law as to the technical qualifications to be possessed by persons giving massage and other treatment, but this proved to be a matter of considerable difficulty; and reliance is placed upon the former by-law giving the Council general power to refuse a licence to any establishment "in which massage or any curative treatment is or may be administered by any person who does not possess such technical qualifications as may be reasonably necessary."

NURSING AT THE LEEDS UNION INFIRMARY.

During the last quarter of a century there has been going on very quietly, very unobtrusively, but with great efficiency a highly important work in connexion with the improvement of the nursing in the Leeds Union Infirmary. About twenty-five years ago Dr. James Allan, who has been the medical superintendent for some forty years, instituted a course of training for the nurses. With untiring zeal he has carried on this work aided by his subordinates and by the matron; specimens and diagrams have been procured and systematic tutorial instruction has been provided. A member of the honorary staff of the General Infirmary was invited by the guardians to act as examiner. The first examination was held in June, 1896, and examinations have been held annually without a break since that date. The examination is conducted by written questions and by a *viva voce* interview in which the candidates are separately examined by the external examiner in the presence of the medical superintendent and the matron. In sending in his last report in May of this year the external examiner mentioned that this was his twenty-sixth annual report, that on the first occasion there were only three candidates, but that since then the number had increased and has been as high as 32. The total number of candidates examined during the twenty-five years was 455. There are projected improvements in connexion with the work of the Union Infirmary which will lead to a fuller and more varied training for the nursing staff. The standard of general education shown by the candidates has been remarkably good, and increased opportunities for medical, and especially for surgical, training will be attended with the best results. By those who have been able to follow the development of the training of the nursing staff at this infirmary Dr. Allan's work is regarded as beyond praise.

Scotland.

THE CENSUS.

FROM a written answer to a Parliamentary question it appears that the preliminary examination of the reports of the recent census shows that the population of Scotland has increased by 121,253 persons, or 2.5 per cent. This increase consists of 39,457 males and 81,796 females, the larger disproportion than usual being accounted for probably by the loss of men in the war. The largest percentage of increase appears to be in the county of Bute, which includes the islands of Arran, Bute, and the Cumbraes, and shows an increase of 85 per cent. This is a curious result, and probably the reason for it may be ascertained after the census returns have had a final revision and examination. It may be explained, perhaps, by an increase in the number and an improvement in the financial circumstances of that part of the working population of Glasgow and its industrial suburbs which prefers to make its home farther down the Clyde. The county of Lanark, with a population of 1,539,307, shows the largest actual increase—namely, 53,189. Some of the northern counties show a very striking fall in population, for instance, Caithness, with a population of 28,284, has a decrease of 11.6 per cent.; Sutherland, with 17,800, a decrease of 11.8 per cent.; Ross and Cromarty, with 70,786, a decrease of 8.5 per cent.; and Aberdeenshire, with 300,980, a decrease of 11,197, or 3.6 per cent. Among the burghs, Glasgow, with a population of 1,034,069, has the largest increase, 25,582, or 2.5 per cent., while Dundee, with a population of 168,217, shows the largest decrease, 8,134, or 4.6 per cent. Those districts of the country

which are industrial (the town of Clydebank, for instance, has an increase of 23.9 per cent.) and mining (such as Dunfermline, with an increase of 36.5 per cent.) are those which show the largest increase in population, while the agricultural and Highland counties show a considerable decrease. The decrease in the large industrial city of Dundee may be because the jute trade, which was adversely affected during the war, has not yet recovered, and its very large female population may have found work in other districts; while Aberdeen (the metropolis of the fishing industry) and Edinburgh, which also show considerable decreases, are, like Dundee, situated on the East Coast, and must therefore have suffered financially from the effects of the war more severely than other towns. However, the result as a whole may be taken as satisfactory, but such statistics of a census must have a much more thorough sifting and consideration before general conclusions of real value can be drawn from them.

The Professorship of Midwifery in the University of Edinburgh.

It would appear that the University authorities in Edinburgh are finding some difficulty in filling the Chair of Midwifery. Sir Halliday Croom's intention to resign was intimated several months ago, and yet we understand that the chair has now been placed "in commission," and a temporary appointment of a lecturer on midwifery for the winter term has been made pending the making of a permanent settlement. Sir Halliday Croom, it will be remembered, has been lecturing on obstetrics to the male students; Dr. Barbour has been the lecturer on gynaecology to the same, whilst the women students have been taught both these subjects by another lecturer in a separate class. Dr. Barbour's appointment terminated (by age limit in the Royal Infirmary) last spring, and this, associated with Sir Halliday's resignation, made it possible for the Medical Faculty and the University Court to reconsider the advisability of conjoining the teaching of obstetrics and gynaecology under one professor, an arrangement which held good until 1906 or so. It is understood that the Medical Faculty, the University Court, and the Curators of Patronage have had this question under consideration, but that no decision has been reached. A subsidiary question which seems to call for thought is whether in future the subjects of obstetrics and gynaecology should be taught as a mixed class or separately (as at present).

Portrait of Lord Lister for Edinburgh.

At an extraordinary meeting of the Royal College of Surgeons of Edinburgh, held on July 18th, the President, Dr. George Mackay, presented to the College a portrait of the late Lord Lister. The picture is a full-sized copy made by Mr. Dorfield Hardy of the portrait painted by W. Ouless, R.A., in the possession of the Royal College of Surgeons of England. In accepting the portrait on behalf of the College, the Vice-President (Dr. McKenzie Johnston) expressed the satisfaction the College had in acquiring this memorial of its most distinguished Fellow through the generosity of their President. Joseph Lister entered upon his great surgical career as house-surgeon to Professor Syme in the old Royal Infirmary of Edinburgh. Later he acted as a lecturer on surgery in the Extra-mural School in connexion with the Surgeons' Hall and as assistant surgeon to the Royal Infirmary, and subsequently he succeeded Syme in the chair of clinical surgery in the university. He became a Fellow of the Royal College of Surgeons of Edinburgh in 1855, and on the occasion of the celebration of the fourth centenary of the College in 1905 was elected an honorary Fellow, the diploma being presented by the President, Sir Patrick Heron Watson.

Scarlet Fever in Edinburgh.

The report by Dr. Maxwell Williamson, Medical Officer of Health for Edinburgh, on the recent scarlet fever outbreak, shows that the epidemic, which reached a total of 337 cases with one death (that of a man 59 years of age), was confined to a comparatively small area of streets of tenement dwellings at the Leith boundary of Edinburgh. From the characteristics of the epidemic it was evident that the milk supply was involved, but it was remarkable that the infection was traced to no fewer than four separate milk supplies.

Ireland.

Irish Medical Committee.

At a meeting of the Irish Medical Committee, held in Dublin on June 30th, with Dr. J. M. Day in the chair, Mr. R. J. Johnstone was unanimously re-elected chairman and Dr. Power vice-chairman, Dr. T. Hennessy being re-appointed medical secretary and Mr. C. H. Gick secretary. The draft new regulations and by-laws of the British Medical Association were considered, their purpose being to provide machinery whereby the Association could admit into co-operation with itself any Irish or Overseas Branch which considered that dissolution of the Branch, establishment of an independent body, and subsequent affiliation with the Association would be the best way of obtaining complete independence such as might be secured by the formation of an Irish Medical Union or Association. Mr. R. J. Johnstone and Dr. W. O'Sullivan were appointed to represent the Irish Medical Committee at a conference with representatives of the Council of the British Medical Association in London on July 5th.

The resolution passed by the Royal College of Surgeons in Ireland in connexion with the military order regarding reports on wounded persons admitted to Irish hospitals for treatment was approved and adopted. It was resolved to form, with other Irish medical bodies, a committee for the purpose of organizing the profession on the question of obtaining adequate remuneration for life insurance.

Grants to Irish Hospitals.

The following resolution was unanimously passed:

> The Irish Medical Committee is unable to find any justification for the decision of the Government to refuse to give any aid to the Irish voluntary hospitals, while granting a sum of £500,000 to the British hospitals; the grant is intended to assist hospitals out of the financial difficulties arising out of the abnormal economic conditions of the past few years, conditions which have pressed as heavily on Irish hospitals as on British; moreover, the Irish hospitals injured their resources, like hospitals elsewhere in the kingdom, by their services to soldiers and sailors during the war.

It was directed that the resolution should be forwarded to the Chief Secretary and several members of Parliament.

Correspondence.

BIRTH CONTROL.

SIR,—Dr. Scharlieb is happy in the faith that the uncontrolled propagation of the species is the pleasant duty of man. Fortunately for the human race most women crave the refined joys of motherhood. The anxieties, forethought, thrift, and self-denial which children occasion provide an outlet for woman's finest qualities, and keep her mind intellectually and morally sound. If the natural functions of a married woman are frustrated artificially or from inherent sterility the nervous system may suffer. But provided a woman has the number of children she is able to rear—and life in these days means more than hard work and hard fare—artificial limitation of the family is harmless to the woman and is no great menace to the race.

When this planet was an empty land and the mansions in the skies awaited occupants there was no need to restrict the population. But it is fatuous to assume that the earth was set going for the benefit of man, or that it will maintain him regardless of numbers. Lecky in his wise way tells us "that it is a moral offence to bring children into the world with no prospect of being able to provide for them." If this statement is true a large section of humanity is guilty of gross immorality and is responsible for much avoidable misery. So long as the means of livelihood are ample and large families no handicap in the struggle for existence the reproductive instinct has full play; when the people multiply so fast that the food is inadequate the reproductive instinct comes into opposition with the instinct of self-preservation and the birth-rate is checked. It is not perhaps good taste to consider the means employed to this end, but assuredly continence is not, and never will be, the principal one. Whatever the

means employed, and whether righteous or not, the propensity to limit the highest form of life operates silently and steadily amongst the more thoughtful members of all civilized countries.

Many women of the educated classes revolt against the drudgery, anxieties, inconveniences, disease, and disfigurements which attend the yearly child-bearing advocated by the moralist. The wonder is they have not revolted before. They prefer a small family, which can be well brought up, to an unlimited progeny which carries them to the limit of their physical and financial resources. Reckless and improvident child-bearing does not add to the health and prosperity of the nation; it increases the infant mortality, and places an unfair burden on the State. The socially efficient are asked to fill the coffers of the State to support the luckless offspring of those who think the least and procreate the most. This is harmful to all sections of society.

Moreover, it is conceivable that to be fruitful and multiply will not always be the sound advice it is now thought to be. If medical science exterminates the more destructive diseases, as it hopes to do, and if brotherly love breaks down national frontiers and abolishes war, reproduction and self-preservation may come into grave conflict; the unrestrained multiplication of the race may then become a criminal offence.

Dr. Scharlieb's contention that the wise limitation of families wrecks the nervous system of women, inflames the passions of men, and fosters the gratification of lust, with or without marriage, is not proven.—I am, etc.,

Birmingham, July 18th. G. A. WILKES.

SIR,—There is a great difference between that which has been well termed "constructive birth control" and the general and indiscriminate use of "contraceptives." In certain circumstances, under certain conditions, both hygienic and economic, the family can be limited and "spaced," under medical advice, with great and direct benefit both to the State and the individual. In my opinion, the knowledge of the means by which this result can be safely and properly obtained should be imparted to those who are most likely to derive benefit from it—the poor and the feeble. The upper classes and the rich are sufficiently instructed. But the widespread advertisement and public display in shop windows of "contraceptive" appliances can do nothing but harm. The number of young girls who go wrong and are more easily led astray trusting in these methods as a sure shield against impregnation is legion. I have had experience in these matters for forty years, and I am convinced that the standard of practical morality among young women has steadily deteriorated during that time in which the doctrine of prevention of conception has been preached. The policy of the British Medical Association that the public display and advertisement of "contraceptives" should be prohibited by law is absolutely right, and I hope it may soon prevail.—I am, etc.,

London, W., July 22nd. E. B. TURNER.

SIR,—The advocates of birth control are so honest in their convictions that they boldly adopt an attitude of intellectual anarchy. Artificial birth control is against the laws of nature, and anything against these laws was held by the ancient pagan world to be vicious. Moreover, the use of preventives involves the doing of an act without being prepared to accept the natural consequences, and this mankind has generally considered to be wrong. Without attempting to dispute the truth of these two propositions, those who favour birth control seek to prove that its practice is beneficial to humanity, or in other words, that the end justifies the means. That is a doctrine which has been universally repudiated by mankind, and incidentally there is a legacy of 1,000 Rhenish guilders awaiting anyone who, in the judgement of the faculty of law in the University of Heidelberg or of Bonn, is able to prove that any Jesuit ever taught this doctrine or anything equivalent to it. Nevertheless, if birth control, although an offence against moral and natural law, was beneficial to humanity, then at least there would be an argument in favour of the end justifying the means, and in favour of intellectual anarchy towards what has hitherto been accepted as a moral law.

But those who advocate birth control have neither proved that it is beneficial, nor have they disproved the generally accepted clinical opinion that these practices lead to physical disabilities. Dr. Killick Millard sent a question paper to 100 medical practitioners selected at random, and the majority of replies received stated that two forms of contraceptives were not injurious. Now we are not told how many replies were received, and, as doctors do not include amongst their virtues the answering of polemical letters, I hazard the guess that Dr. Millard was fortunate if he received twenty answers. Although the majority of those who did reply, presumably because they held strong views on the subject, were in favour of birth control, it is unwarranted to suggest that the majority of those who did not reply were of the same opinion. Nor do a few opinions culled at random outweigh the evidence of Dr. Mary Scharlieb and of many other gynaecologists and physicians that these practices are harmful to women and to men.

Dr. Millard states that sterility is so common that it may have no relation to birth control, but against this we know that sterility is less common in countries such as Ireland and Spain where birth control is not practised. Moreover, amongst the poorest peasants in the West of Ireland, where there are neither infant welfare clinics nor societies for preventing parents being cruel to their children, the infant mortality rate is lower than it is in the city of Leicester. Furthermore, the people of those countries are very much happier than the people of Great Britain. To avoid the possibility of sterility Dr. Millard would advise all young couples to make sure of some children before beginning birth control. This is ingenious. Unfortunately, it is during the early days of married life that most sacrifice and self-denial is demanded of parents in the interest of children, and if the parents have prospered in the world there would be less reason to limit the family later on.

Malthus, who was so concerned about the birth rate that he forgot that every one of us must die, would have welcomed the views of Dr. Binnie Dunlop, because he repeats his economic and statistical fallacies, long since disproved. The number of inhabitants that a country can support does not depend on the amount of food that the country can produce, but on the industry and culture of its people, and a high birth rate is not of necessity associated with a high death rate.[1]

Even if birth control gave rise to no physical disabilities, its psychological results require to be considered, because mankind is something more than the appanage of a testicle or of an ovary. It may be asserted without fear of contradiction that no ordinary man or woman approaches or begins the practice of birth control without experiencing at first an unpleasant feeling of repugnance and shame. Later on these feelings may be overcome by habit, but what is their effect on the relation between husband and wife, on their emotions towards each other, and towards the whole sexual nisus? Mr. Bernard Shaw recently stated at the Medico-Legal Society that when people use the most usual method of birth control they are engaging, not in sexual intercourse, but in reciprocal masturbation. That is the plain truth of the matter. Again, as a friend in the Church of Scotland once remarked, "The man who adopts these measures is simply using his wife as he would use a prostitute." What, then, is the psychological effect of these practices on the mutual love—if an old-fashioned word be not here out of place—and on the self-respect of two people? Does birth control make for happiness, or does it place mutual love at the mercy of an irresistible animal desire which is neither denied nor satisfied?

Dr. Millard states that "There is room for full and thorough scientific research." If that be true, it is a thousand pities that any one should advocate birth control without first having made a thorough investigation into all its consequences.—I am, etc.,

London, N., July 23rd. HALLIDAY SUTHERLAND.

SIR,—From the Imperial point of view the artificial limitation of the family is much to be deprecated. The Government of the British Empire is in the position of the man with a large estate, which, however, is poorly developed, because he has neither children nor servants sufficient to work it. In England the population is very dense in the large towns and adequate in the country

[1] Notter and Firth's *Hygiene*, sixth edition, pp. 411 and 419.

districts, but in Australia, Canada, and South Africa the population is totally inadequate to the effective occupation of the land; therefore their mineral treasures and possible corn harvests are not produced, and the lands themselves are a constant temptation to their neighbours. There is no wonder that Japan casts longing eyes on Australia, and that the frontier of Canada would prove no bar to invasion by her great neighbour. Viewed from this point, the problem of artificial limitation of the family becomes complicated with many other questions into which I must not enter now; but we must remember that the movements of the British race within the territorial limits of the British Empire ought to be described as *migration*, not *emigration*, and that much care and thought should be given to the best means of encouraging our people to occupy a larger area of surface, and to avoid the great evils dependent on excessive urbanization in one part and insecurity of tenure in another part of our empire.—I am, etc.,

July 20th. MEDICUS.

MEDICAL IMPRESSIONS OF THE MINERS' STRIKE.

SIR,—During the sitting of the Sankey Commission, and in the various disputes between the Government and the miners since that time, it has been the practice of the miners' leaders to indulge in somewhat extravagant language when describing the hardships and dangers of the miners' calling, and to paint in the most sombre colours his miserable existence, his wretched house, the general sordidness of his whole environment, etc., all with the view of strengthening the appeal for any increase of wages being made at the time. As advocates of the miners' case they did their work exceedingly well, and if sometimes they "overdid the part" nobody was deceived—it was all in the game.

But when a colliery doctor of experience, as "General Practitioner" claims to be (July 16th, p. 94), makes statements and advances proposals on the miners' behalf that would put any miners' leader to the blush, the matter is more serious and calls for investigation.

"General Practitioner," who works in a large colliery district in South Wales, has been impressed during the recent strike with the paucity of sickness among the miners, the improvement in their general condition and appearance, and the remarkable results of open-air treatment in a few cases of pulmonary disease which came under his care. This of course is not surprising, since during the whole period of three months, in exceptionally fine weather, the miners were being fairly well fed, and had unlimited leisure for play and recreation in the open air. It does not strike "General Practitioner" that any other class of workers in the same circumstances would have shown a like improvement in general condition and appearance, but because, in this case, they happened to be miners he draws the inference that the miners' work is injurious to health, and advances the amazing proposition, "Would it not be economically and even morally profitable to give the collier fourteen days' rest from work, with full pay, after every three months' period of full time work?"

What a splendid thesis for a miners' leader to develop at the next demand for an increase of wages—"The suggestion of a medical authority," "quoted from the columns of the BRITISH MEDICAL JOURNAL"!

But the case that "General Practitioner" puts forward will not stand investigation. His reasoning is faulty. I suggest to him that it is very unwise to draw inferences as to the harmful nature of the miner's work from observations made during a long period when the miners were at play. Why does he not give us facts and opinions gained from his experience of the miners in their ordinary workaday life, and under continuous exposure to the conditions incidental to their underground occupation, and draw his conclusions therefrom?

As he has not done so, perhaps he will allow me to give some of my own, gathered in a much longer acquaintance with the miners than he claims for himself; gained, however, not in South Wales but in the county of Durham. I confidently affirm that as a class the miners in this county are strong, hardy and vigorous; in physique, general good health and freedom from disease they compare favourably with any class of workers in the country. Despite the arduous and dangerous nature of their work their mortality is below that of many other workers; they make capital soldiers, and excel in all athletic sports requiring strength and endurance—for example, football, swimming, etc. In temperament they are happy, hearty and optimistic.

Now these are facts and opinions about the miner, facts which can be substantiated by statistics, opinions which I can undertake to have endorsed by scores of colliery doctors in this county. I advance them against the inferences of "General Practitioner," and offer them as a sufficient answer to the four questions he asks. Can it be said of these men that they do not get as much sunshine and fresh air as they need, that they do not get the necessary rest from work and sufficient opportunity for healthy recreation, or that it is necessary or desirable on economic or moral grounds "to give them fourteen days' rest from work, with full pay, after every three months' period of full-time work"?—I am, etc.,

Co. Durham, July 19th. AN OLD COLLIERY DOCTOR.

CAPILLARY PRESSURE.

SIR,—If Dr. Gillespie will use an ophthalmoscope he will find at the disc an unqualified confirmation of Professor Leonard Hill's views. Before doing so I would ask him, however, to revise his erroneous conception of what Professor Hill has really stated.

Professor Hill has never, either in his lecture or any of his writings, "assumed that the pressure in the cerebral arterioles, capillaries, and venules was no greater than that of the cerebro-spinal fluid," but what he has demonstrated is that the venous pressure in the torcular Herophili stands at the same level as the intracranial pressure. The reference to this in the lecture could not have been put more concisely. Professor Hill stated:

> "I found the pressure of the cerebro-spinal fluid, cerebral venous pressure, and the pressure of the brain against the skull wall were the same and varied together, and I concluded that the cerebral capillary pressure is only some 5–10 mm. Hg and is practically the same as the pressure in the cerebral veins; only the least difference is required to maintain the flow."

Now in the eye this equilibrium between venous pressure and fluid contents can be demonstrated by the aid of the ophthalmoscope, as I have detailed in a paper on the clinical proof of the venous level of the intraocular pressure (*Trans. Ophthal. Soc.*, xxxiv). All that is necessary is to observe the retinal veins at the disc, and while doing so touch the lid with as light a touch as possible. Instantly the proximal portion of the retinal veins will show a constriction, demonstrating that a pressure on the lid, so light that it might not be thought possible for it to be transmitted through the lid to the intraocular contents, nevertheless does so, and in so doing disturbs the existing level of equilibrium between intraocular and venous pressure. Equilibrium between the two is still maintained, but at the fractional higher level of the applied pressure, slight as it is, and the venous wall falls in in response.

The conditions in the brain and eye are identical. The pressure of the cerebro-spinal fluid and aqueous always balances the venous pressure, as measured experimentally at the torcular Herophili, or viewed clinically at the disc. This venous pressure is admittedly fractionally less than capillary pressure, but when this difference is translated into mm. Hg it is a negligible figure, as shown by Professor Hill in the quotation given above.—I am, etc.,

Nottingham, July 23rd. THOMSON HENDERSON.

SIR,—I do not propose to desist from answering Dr. Gillespie's letter (in your issue of July 16th) because he has discovered a lack of intelligence in Dr. Hill and myself. I am at least intelligent enough to know that argument on a difficult problem in physiology is not assisted by the introduction of personal remarks. I feel ready to make every allowance for the somewhat excitable and hyperbolic atmosphere that prevails occasionally in the city (Belfast) from which Dr. Gillespie dates his letter.

I do not propose to follow Dr. Gillespie from soap bubble films to garden hose-pipes. I am not concerned with how the tension of the soap bubble film or the tension in the wall of a hose-pipe is created. Experimental evidence already quoted by Dr. Hill and myself proves that a

capillary wall in normal conditions is under no such tension, however created. Dr. Gillespie wrote:

"When he (that is, Dr. Hill) makes a slight increase in he outside pressure in his modification of the Roy and Brown apparatus described in paragraph 17, this causes a diminution of the tension in the capillary walls resulting in a diminution of calibre which causes a slowing of the current, although he may not have made the outside pressure anything like as great as the inside pressure, as he wrongly assumes he has done in paragraph 19."

It is a perfectly fair deduction to make that Dr. Gillespie considers that the capillary wall under its tension is striving to narrow its lumen, and is prevented from doing so by the intracapillary pressure, precisely as a soap bubble wall is striving to narrow the diameter of a soap bubble, and is prevented from doing so by the internal compensating pressure in the bubble. Consequently, Dr. Gillespie holds that a pressure that is applied to the outside of a capillary wall narrowing the capillary lumen is not equal to or greater than the intracapillary lateral pressure. Experimental evidence shows clearly that there is no such tension in the walls of a capillary, and that the outside pressure which, when applied to the capillary wall, narrows the capillary lumen, overcomes the intracapillary lateral pressure.

Normally there is no intracapillary pressure high enough to create such tension in the capillary walls. The old measurement of intracapillary pressure of 30 to 50 mm. of Hg as measured on the finger at heart level is founded on a most inaccurate method. That is common knowledge to be found in every textbook. The arteriole pressure as measured on the finger at heart level is normally about 10 mm. of Hg; the capillary pressure is less, and approximates to the venous pressure. These low figures are the sum not merely of the lateral pressure but also of the kinetic energy of flow. Consequently the lateral pressure in a capillary is still lower and is in all likelihood balanced by the tissue fluid pressure outside the capillary wall. Consequently the capillary wall cannot be under tension.

Had those physiologists who wrote largely upholding pure physical theories of the production of lymph and urine not found that the measurement of 30 to 50 mm. of Hg as representing capillary pressure sufficed to overcome the osmotic pressure of blood protein, progress towards accurate capillary blood-pressure measurement would have been made sooner. I have been for several years perfectly familiar with the application in physiology of the formula quoted by Dr. Gillespie. It has already been used by those who maintain physical theories of lymph production to buttress up the inaccurate intracapillary pressures that lie at the very foundation of all their writings.

If Dr. Gillespie chooses to assume $p_1 - p_2 = 50$ mm. of Hg, by aid of a simple equation, he can prove another assumption. But it remains an assumption, not a fact. Dr. Gillespie writes:

"Dr. McQueen reaches a point of still greater absurdity, for he imagines he has proved that the pressure at a point in a capillary through which blood is being forced is less than the pressure at the point immediately opposite on the outside of the capillary."

I supplied actual figures for an equation of Dr. Gillespie's choosing. The figures were chosen *having regard for Dr. Gillespie's assumptions*. The result was such a minute negative quantity that to all intents one may state no tension existed in the capillary wall. What is the use of writing the formula at all when we know that the best data available shows in all probability $p_1 = p_2$? Dr. Gillespie's figure of $p_1 - p_2 = 50$ mm. of Hg is as inaccurate as it is possible to be. The result I obtained, even when yielding to the assumptions of Dr. Gillespie, is in accordance with experimental findings. The result Dr. Gillespie obtains is simply a repetition of his original assumption and has no experimental proof to confirm it. Dr. Gillespie fails to quote Dr. Hill correctly. Dr. Hill wrote:

"An artery, big or small, when compressed by a surrounding fluid pressure is shut up by a compressive force *practically* equal to that of the pressure which is maintaining the flow through the artery and which is measured directly by a manometer connected with the lumen of the artery."

Dr. Gillespie omitted the word "*practically*," which means that the external compressing pressure is at most 1 mm. of Hg higher than the internal distending pressure. Further, Dr. Gillespie fails to appreciate that in measuring such pressure by the armlet method or by a terminal manometer, not merely the lateral pressure distending the artery but the pressure due to conversion of the kinetic energy of the blood flow into lateral pressure is measured. Consequently a flow of blood can be maintained through a vessel (capillary) whose lateral pressure balances the external tissue pressure and the blood vessels would not be shut up.

When Dr. Hill reduces the bulging of the brain at a trephine hole, with the animal in a horizontal position, he balances the lateral pressure in the arteriole-capillary venous network. The brain protrudes from the unbalanced bulging of the capillary venous network, and recedes when the calibre of these vessels is restored to normal. When the heart ceased beating these vessels collapsed to a greater or less extent, the external tissue fluid pressure tending to close them, which tissue fluid pressure can be balanced by altering the position of the animal and bringing gravity into play. Dr. Hill's method does not measure total pressure, lateral and kinetic, in the capillary venous vessels of the brain but the lateral pressure only. When he restores the volume of the brain to normal by counterbalancing pressure he restores the calibre of the capillary venous system to normal and measures the lateral pressure, the kinetic energy fraction still maintains the normal flow of blood in the capillaries. There is no analogy here whatever to the pressure of water in a garden hose-pipe and the pressure of the atmosphere.—I am, etc.,

Halesowen, July 18th. JAMES M. MCQUEEN.

SIR,—Dr. James McQueen has been good enough to submit the above letter to me before publication, and as it fully answers Dr. Gillespie's letter of July 16th it is unnecessary for me to make any further reply.—I am, etc.,

July 19th. LEONARD HILL.

TREATMENT OF ACUTE TOXAEMIA.

SIR,—I do not know whether sweating "not improbably corresponds to a revolutionary change in protein metabolism, and may be considered a part of the process of adjustment to altered biochemical states, analogous also in some way to tears in emotion." These abstruse problems always puzzle me. But I do know three things: (1) If Dr. King gives the dose I suggest to a pneumonic on, say, about the fourth or fifth day of illness, he will get the surprise of his life. The patient, if not too far gone for redemption, will be vastly relieved and not improbably will recover there and then. (2) Glands are fractionally distilling organs. (3) Toxins, if present in the sweat, can be detected there—for example, in diphtheria. Bacteriologists are looking for them at this moment.—I am, etc.,

Southsea, July 19th. G. ARCHDALL REID.

WOMEN DOCTORS AND PEDIATRICS.

SIR,—In the current issue of the JOURNAL the medical officer of health for Doncaster has an advertisement for an assistant for *maternity* child welfare and schools. Applications are invited, by *males*.

Surely this is a retrograde step. If there is one branch of medicine for which women are, at least as well as men, fitted it is the care of children—ante- and post-natally. On Wednesday morning I saw 28 babies officially and treated 16 of their mothers unofficially. Out of the 16 mothers I discovered that 3 were pregnant under three months, and another five months pregnant I already knew of. Surely this is important, as admittedly the ante-natal and neo-natal periods are the ones we have been able to safeguard least. Few pregnant women can continue suckling and be healthy, and there is so much one can do to help them. It may be early Victorian and it may be silly, but the fact remains that, had I been a man, the fact of pregnancy would not have been disclosed. Nor would the mothers' health have interested a man, unless she was very obviously ill. It is useless treating babies apart from their mothers. An ill mother is not a suitable custodian for a child. What I call the *pre*-ante-natal period is as important as any. One does not want to wait till the next pregnancy, when it is often too late for vigorous treatment, though it would appear that,

just as one thought some headway was being made, the Ministry of Health has decided only to allow milk for necessitous expectant mothers during the last three months. The early months are just as, if not more, important, especially when the mother has several young children and is exhausted by prolonged lactation. This economy, together with that of allowing no baby more than one pint of milk a day, till it becomes ill enough for a certificate for more, is one which might well have been made on something else—say telephones.

To get back to the point, which is that the British Medical Association should use its powers to prevent women being denied equal opportunities of service in such eminently suitable posts as those of pediatrics and venereal diseases of women.—I am, etc.,

Leeds, July 16th. MARION E. MACKENZIE.

NATIONAL PROVIDENT SCHEME FOR HOSPITAL AND ADDITIONAL MEDICAL SERVICES.

SIR,—I am afraid Mr. McAdam Eccles's comments on my previous letter to you are far from convincing, and I should like the opportunity of dealing further with the subject.

1. *Statistics.*—I fully realize that the scheme is intended primarily for the purpose of overcoming the present financial difficulties of the 113 voluntary hospitals in London, but if a bait must be thrown out to attract the money, why not make it an attractive one in the nature of a useful scheme instead of an expensive one which will be of very little use either to the general practitioner or to the public. If more than 1,200,000 persons subscribe it will certainly be a great success, especially from the consultant's point of view. I suggested that by the elimination of a certain class of case from the hospitals the deficit would diminish largely. Mr. Eccles's objection to this elimination, on the ground that it will interfere with the teaching of medical students, I will deal with in another paragraph.

2. *Facilities offered to Patients.*—I realize that the facilities will be available solely through the general practitioner, but what I urge is that the facilities should be available directly to the doctor. If a patient thinks that he or she should see a consultant, and the doctor thinks it unnecessary—and I can assure Mr. Eccles that patients will force their views on the subject on the doctor—the goodwill and harmony existing between doctor and patient is going to be seriously disturbed.

3. *Consultations at the Homes of the Patients.*—Of course I admit that these are necessary at times, but I fail to see why such a large proportion of the sum collected should be set aside for this purpose. The scheme provides for one bedside consultation for every forty of the population per annum, probably ten times as many as are likely to be required.

4. *Facilities for the Doctor.*—Mr. Eccles states that if the scheme is a success, and sufficient money is forthcoming, "primary centres" will be established. If such is contemplated, why not go straight ahead and formulate a scheme which will provide these centres forthwith? However successful the scheme is, the cry later will be, "The sickness incidence is not increased by the existence of the scheme; no more clinics or institutions are required." A post-graduate college is also suggested. That will be extremely nice, but if you are going to teach your doctor and keep his knowledge up to date you should give him an outlet for using his brains and skill should he feel so disposed.

5. *Medical and Nursing Education.*—I have not overlooked the fact that material is needed for the education of the medical student. There are 113 voluntary hospitals in London. The material of twelve only is being used for teaching purposes. Surely some scheme could be devised whereby the enormous mass of valuable material passing through the other 101 hospitals could be made available for this purpose. Some form of co-operation such as exists between St. Mary's Hospital and the allied institutions could surely be arranged whereby this valuable material which is now wasted could be utilized for the benefit of future generations of medical men.

To sum up: the scheme as it exists at present will, if successful, be of undoubted value to the hospitals, although the "primary centres" scheme (which should include beds for cases where home treatment is unsatisfactory) would also relieve the strain on the hospital funds. The advantages to the average subscriber will be very small. The advantages to the general practitioner will be doubtful, and the advantages to the consultant will undoubtedly be the greatest of all.

The scheme has already been commenced in connexion with certain of the London hospitals, and it will be interesting to note with what measure of success it meets.—I am, etc.,

London, W., July 16th. S. CAPLAN.

DEATHS FROM PLUMBISM.

SIR,—In his interesting address on industrial hygiene Sir Thomas Oliver quotes Home Office statistics on the cases of plumbism and deaths therefrom for the years 1900–1919. The interest of the numbers lies not in their undoubted decrease so much as in the different rate of decrease in the two columns and the cause of this difference. The ratio of deaths to cases is as 2 to 57 (roughly) in the first quinquennial period, and as 2 to 23 in the last similar period.

Why should this be? Is it due to some medical cause? or has some fallacy crept in due to the ever-present human factor? for example, is there greater skill in the diagnosis of fatal cases, or greater slackness in the notification of mild cases, or greater reluctance on the part of the "mild case" to attend the doctor?

Admittedly the case for regulation, as opposed to abolition, of dangerous trades rests on statistics. Hence it is of some interest to inquire whether the large drop in the case rate or the small drop in the death rate is the more accurate measure of the benefit conferred on the lead industry by regulation.—I am, etc.,

July 25th. STATISTICUS.

Obituary.

F. W. N. HAULTAIN, M.D., F.R.C.P.E.,

Physician, Royal Maternity Hospital, Edinburgh.

DR. FRANCIS WILLIAM NICOL HAULTAIN, whose death occurred in Edinburgh on July 20th, will long be remembered as a gynaecologist of unusually alert mind, as a brilliant operator, as a successful and popular teacher of obstetrics and gynaecology, and as a man of the most kindly disposition. His many friends will sincerely mourn his death. As a consultant in his own speciality he was always in great request, and among his patients were to be counted many bearing famous names.

Born in Colombo, Ceylon, on June 6th, 1861, he received his education at Craigmount School and Edinburgh University, graduating M.B. and C.M. in 1882. For a few months after graduation he was interested in asylum work, but he soon found his way into the specialities of obstetrics and gynaecology, which he was to make so conspicuously his own, and after study at Prague, Vienna, and Berlin, he commenced practice in Edinburgh. He became a Member of the Royal College of Physicians in 1887, and proceeded to the Fellowship in the following year; in 1889 he graduated M.D., and in the same year he published—in association with Dr. Haig Ferguson—the *Handbook of Obstetric Nursing*, which has enjoyed great popularity, and has passed through several editions in this country and in the United States of America. During these early years Dr. Haultain had been acting as assistant to Dr. (afterwards Sir) Halliday Croom, but he began his individual career as a lecturer on midwifery and gynaecology in the Extra-mural Medical School in 1893. How well arranged and compact his lectures were could be surmised from the *Practical Handbook of Midwifery*, which he published in 1894, and which contained the substance of his teaching.

Meanwhile he had been appointed an assistant physician to the Royal Edinburgh Maternity Hospital (in 1900), and one of the assistant gynaecologists to the Royal Infirmary. The latter post he relinquished in a short time on account of the pressure of his rapidly increasing private and consulting work. He retained his post, however, as gynaecologist to the Church of Scotland Deaconess Hospital, which he held from its beginning up to a few months before his death. The nursing home which he established in

Lauriston Place, and later in Archibald Place, developed in process of time into the Hospital for Diseases of Women, with a full staff, upon which Dr. Haultain had always remained. In the special department of the treatment of fibroid tumours of the uterus by hysterectomy the success which he attained was for the time phenomenal, and many other gynaecologists found inspiration in his work and profited greatly by his example. How successful his operative practice was may be recognized from a reading of the many contributions which he made to the *Transactions* of the Edinburgh Obstetrical Society, of which he was President in 1910. In 1904 he took his place on the senior staff of the Edinburgh Royal Maternity Hospital, and served that institution actively till 1919, when he was appointed one of the consulting obstetricians. Dr. Haultain's services were also in great request as an examiner. He acted in this capacity for the Membership of the Royal College of Physicians of Edinburgh and for the Licence of the Triple Qualification; and later he was appointed an Examiner in Midwifery and Gynaecology for the Universities of Aberdeen, Edinburgh, Oxford, Manchester, and Durham, and for the Indian Medical Service. In 1917 the College of Physicians showed their confidence in him by appointing him one of their two representatives on the Board of Management of the Edinburgh Royal Infirmary, and had he lived a little longer he would inevitably have occupied the presidential chair of the Royal College of Physicians.

Dr. Haultain was one of the first in this country to test and then to advocate the practice of early rising in the puerperium; he did not, it is true, find that all were of his mind on the matter, but his confidence in the procedure was strong and the arguments which he brought forward in its support were weighty, whilst the results which he obtained in his own hospital and private practice were strikingly good. On the pathological side of his speciality his research on chorion-epithelioma was accurate, and gave a lead to British obstetricians and gynaecologists in their understanding of this most malignant and interesting neoplasm. Of late years he became a strong partisan of the so-called "twilight sleep" method of alleviation of the pains of labour. Here again he tested first and wrote afterwards, showing an enthusiasm which no one could regard as unfounded or as unsupported by clinical facts. He wrote upon the subject in the BRITISH MEDICAL JOURNAL of October 14th, 1916, and his last contribution to the literature of obstetrics was an article on "A further experience of the conduct of labour under twilight sleep," which appeared in the July number of the *Edinburgh Medical Journal*. It may be predicted that the enduring worth of Dr. Haultain's many services to the subjects of medical and surgical practice which he pursued will be associated mainly with these three things—the treatment of fibroid tumours, the practice of "twilight sleep," and the shortening of the resting period in the puerperium.

Outside his professional duties and activities Dr. Haultain was a keen fisherman, he played an uncommonly strong game of golf, and he interested himself in cricket, tennis, and football with enthusiasm. He always took a friendly interest in the younger generation; he was a prominent member of the University Athletic Club all his life, and for many years he served on the University Union Committee.

Until the past few months Dr. Haultain enjoyed good health, but then he began to suffer from asthmatic attacks. He sailed for the Canary Islands in June, but on the voyage he had a serious heart attack and was brought home in a critical condition. He rallied somewhat on his return to Edinburgh, but the improvement was transient. He is survived by his widow, who was the daughter of Dr. W. Lauder Lindsay of Perth, and by one son, Dr. W. F. Theodore Haultain, who was recently appointed assistant to the professor of midwifery in the University of Aberdeen.

Dr. J. LAMOND LACKIE sends the following personal appreciation:

Although not unexpected, the news of Dr. Haultain's death came as a great blow to countless friends. He enjoyed to an almost extraordinary degree the confidence and the affection of not only innumerable patients, but also of a host of professional colleagues. Haultain was a great obstetrician and gynaecologist; he was careful and accurate in diagnosis; he was a really brilliant operator, cool, courageous, and resourceful in emergency and at his best when difficulty arose. He loved his work and gave himself whole-heartedly to it. His hospital patients no less than those in private had a great regard for him; his interest in them all was real and personal, and he gave to each his most devoted service. He was an excellent teacher, both as a systematic lecturer and as a clinician. He infused into every subject and into every "case" just that touch of the unexpected and of the humorous which so attracts the student and holds his attention.

And yet when a friend thinks of Haultain it is at first on his outstanding personal qualities rather than on his professional success that he naturally dwells. The prominent feature of his character was his wonderfully cheery temperament; he seemed always in happy mood and in the best of spirits, no matter what professional worries he might have. It was impossible to ruffle him; he was never irritable, and no assistant or nurse ever found him hasty in word or deed. His keen sense of humour often led him to see cause for laughter when others could see nought but trouble and anxiety. Withal he was a man of strong opinions and he could uphold them when occasion arose. He was very jealous of the honour of the profession and of the reputation of the Edinburgh medical school, for which he himself did so much, and he was always ready to uphold them by speech and action. Men valued his judgement in public and private affairs, while the young graduate ever found him ready with good advice in the shaping of his career.

It is a matter of wonder that Haultain found time for so much outside his work. No keener sportsman ever lived, and his interest in sport of all kinds was unbounded. He excelled in all games: at one time he was a great cricketer, at another he was in the front rank of golfers, while throughout his life he was never happier than when out with rod or gun. He was an expert fisherman, and knew many waters in every part of the kingdom. He was a very good shot, and for many years before the war he had a shooting on the Borders, to which he repaired for many week-ends throughout the season. There he welcomed his friends, and many will recall those delightful parties with the happiest memory. Haultain by his constant humour, his flashes of wit, his ready pun, and his fund of story was the life and soul of every gathering. He was a most genial, kindly soul with a broad generous outlook on life and a deep sense of the brotherhood of our profession. He will be long and sincerely missed by all who knew him.

DOUGLAS VERNON COW, M.A., M.D. CAMB.

THE Medical School of the University of Cambridge has suffered a great loss in the death of Dr. Douglas Vernon Cow, at Redruth, Cornwall. He left Cambridge at the end of the Lent term for a holiday at Mullion, and there his fatal illness occurred.

Dr. Cow was the only son of Mr. and Mrs. Douglas Cow, of Streatham Common. He was educated at Harrow, Trinity College Cambridge, St. Thomas's Hospital London, and Vienna, obtaining the degrees of M.A. and M.D. and the D.P.H.Cantab. From 1910 onwards he devoted his life to pharmacology, and was well known throughout the world of science as a distinguished and enthusiastic investigator. His more important publications dealt with the action of the suprarenals and pituitary, though his earlier work was on the kidneys. He produced evidence for believing that water taken by the mouth was more effective as a diuretic than water injected into the tissues, because in the former case the water during its absorption from the alimentary canal caused the absorption of certain hormones which acted as specific diuretics on the kidney. He was also the author of a small textbook on pharmacology.

Dr. Cow had many interests outside his profession; he was for some time President of the Cambridge Swimming Club, was a well-known golfer, an enthusiastic motorist, and an ardent disciple of Sir Clifford Allbutt as a purist in the English language. With his colleagues and pupils Dr. Cow was always a good companion, and his lectures were amongst the most popular in the medical school. At the time of his death Dr. Cow was assistant to the Downing Professor of Medicine (Dr. Bradbury). He was entirely responsible for the teaching of pharmacology in Cambridge during the war, and from time to time had conducted

courses of lectures in London at King's College and the Middlesex Hospital. His disappearance from active academical life leaves a gap in Cambridge which it will not be easy to fill, for he was beloved alike by colleagues and students.

Dr. Cow leaves a widow. W. E. D.

Dr. LOUIS COBBETT writes: The death of Dr. Douglas Cow removes prematurely a genuine worker in the field of pharmacology. Just before his fatal illness he was engaged in some delicate experiments on anaphylaxis. Cow was not one of the thrusting sort, and was content to remain in the background. His work on the suprarenals and the pituitary gland, however, are well known. He was an experimenter of great skill, an excellent teacher, and a trusted colleague. He was most appreciated by those who knew him best, and his death is a severe loss to the medical school.

THE LATE SIR GEORGE SAVAGE.

SIR FRANCIS CHAMPNEYS, Bt., M.D., writes: The obituary notice of Sir George Savage deals with the main facts of his professional career, but fails to give a picture of his personality. Savage was a much more remarkable man than such an account would indicate. His individuality was striking. His chief characteristics were widespread interest, abundant energy, intense sociability, transparent candour, and whimsical humour. He was interested in everything, but especially in mountaineering (until the end of his life), in gardening and botany, in fishing, in fencing, and, of course, in golf. His mental activity was only equalled by his bodily activity. To sit next him at dinner was always a pleasure, for one was sure to find topics of common interest, and he was not a man who forced information upon his neighbour for his own glorification. He loved games, and played them as the first end in life—for the time being. He was, I think, the most clubbable man I ever knew; no wonder that he was always dining out! He hated pose and humbug, and cant could not breathe in his presence. One thinks of him now, naturally, with a smile on his face, a smile not of patronage, nor of sarcasm, but always of good fellowship. When he was ill (which was not often), he was generally the more humorous—often at his own expense. He did not, it is true, like growing old, but indeed his body became a misfit for a soul which always retained something of the boy. One will always remember him as a man of remarkable force of character, and in that sense certainly far above the average of his contemporaries; and as a prince of good fellows, his friends will not forget him.

J. WALKER DOWNIE, M.B., F.R.F.P.S.GLAS.,

Consulting Aural Surgeon, Western Infirmary, Glasgow.

WE regret to announce the death, on July 21st, of Dr. James Walker Downie, the well-known oto-laryngologist of Glasgow. Educated at Glasgow High School and University, he graduated M.B., C.M. in 1881. After holding resident posts in the Glasgow Royal and Western Infirmaries, and at the London Hospital, he commenced the practice of his speciality in Glasgow, and obtained the appointment of lecturer on diseases of the nose and throat in the Western Medical School, and of aural surgeon to the Western Infirmary. Subsequently he held the posts of lecturer on diseases of the throat and nose in Glasgow University, and surgeon to the ear, nose, and throat department of the Royal Hospital for Sick Children, and for some years he was consulting laryngologist to the Ochil Hills Sanatorium. Soon after graduation he had become a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow, and he was appointed one of the examiners for the Fellowship; he presented to the Faculty a handsome mace for use on ceremonial occasions. He was a former president of the Glasgow Medico-Chirurgical Society and of the Scottish Otological and Laryngological Society, a vice-president of the British Laryngological Association, and a member of many other medical societies, including the British Medical Association. Dr. Walker Downie was the author of a *Clinical Manual of Diseases of the Throat*, which reached several editions, of a *History of the Glasgow Medico-Chirurgical Society*, and of many papers on his speciality in the medical journals. There is no doubt that his health was affected by the loss of his only son in Mesopotamia during the war. He is survived by his widow and one daughter.

GEORGE PURVES SMITH, M.B., C.M.EDIN.,

Laoling Hospital, China.

WE regret to record the death, on April 28th, of Dr. George Purves Smith, of the English Methodist Mission, Laoling, North China. Born in 1850, Dr. Purves Smith was educated at Edinburgh Institution, and afterwards entered the Royal Agricultural College, Cirencester, where he obtained the diploma of the Royal Agricultural Society of England, and he subsequently became a farmer in Berwickshire. The scientific side of agriculture suggested to him the study of medicine, and he sold his farm, entered Edinburgh University, and gained the M.B., C.M. at the age of 32. In his university days he was one of the founders and the first secretary of the Student Volunteer Movement, and not content with appealing to others on behalf of missionary work, he himself became a medical missionary in China, under the London Missionary Society, going out to Tientsin in 1887. In 1905 he resigned from the staff of the L.M.S., and was appointed ophthalmic surgeon to the Imperial Chinese Railways. This post he resigned in 1913, when he returned to England, but almost immediately he proceeded to Nova Scotia, where he practised as an ophthalmic surgeon. His heart, however, was in China, and in 1917 he accepted the invitation of the English Methodist Mission to take charge of the Laoling Hospital and Medical Mission. A skilful general surgeon and physician, he always emphasized the fact that he was a missionary, and he died, as he wished, in harness. To quote a paragraph from his hospital report, published only a week before he died: "When we have made everything ready to the best of our ability, and just before we put the patient under chloroform, we call the patient's friends forward; we tell them that we are God's servants and that we must ask His help and blessing. Having prayed, we go ahead. All the major operations healed by first intention." For many years Dr. Purves Smith had been a familiar figure in Northern China, and much sympathy has been expressed by the foreign and Chinese community there with his widow and three sons.

WE regret to announce the death of Dr. JAMES SMART of Aberdeen, which occurred suddenly on July 13th when on holiday at Rothesay. Dr. Smart, who was 49 years of age, graduated at Aberdeen University in arts in 1894 and in medicine in 1899. He had an extensive medical practice in Aberdeen, where he acted as physician to the Aberdeen Infant Consultation Clinic. He was a member of the British Medical Association and of the Aberdeen Medico-Chirurgical Society. He held the rank of lieutenant-colonel R.A.M.C.(T.), and during the war commanded in turn for different periods the 1st Scottish General Hospital, Aberdeen, the Edinburgh War Hospital, Bangour, and the 4th London General Hospital. He is survived by his widow and one daughter.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on July 21st the following medical degrees were conferred:

M.CH.—J. B. Hunter.
M.B., B.CH.—B. K. T. Collins, H. T. Cubbon, L. B. Maxwell, K. Playfair, S. D. Sturton.
B.CH.—W. Shaw, N. D. Dunscombe, J. Whittingale.

UNIVERSITY OF LONDON.

AT a meeting of the Senate held on July 20th Dr. F. S. Langmead was appointed as from August 31st, 1921, to the University Chair of Medicine tenable at St. Mary's Hospital Medical School. Dr. Langmead has held a number of posts at St. Mary's Hospital since 1902, and is assistant physician to the Hospital for Sick Children, Great Ormond Street.

The Rogers Prize of £100 for 1921 was awarded to Mr. Lambert Rogers, M.R.C.S., L.R.C.P., for an essay on "The surgical treatment of hyperthyroidism."

The following candidates have been approved at the examinations indicated:

M.D.—*Branch I, Medicine:* S. C. de Silva Wijeyeratne, G. B. Dowling, W. Feldman, P. Hudson, W. A. E. Karunaratne, G. M. J. Slot (University medal), *J. H. Spencer, J. G. Wardrop,

A. Williams-Walker. A. Wills. *Branch IV, Midwifery and Diseases of Women:* Kathleen M. Cogan, Maud Gazdar, D. H. Geffen, Hilda G. Johnson, Muriel E. Landau. *Branch V, State Medicine:* Lena C. Adam, H. M. C. Macaulay, A. B. Porteous, R. W. Revell, P. S. Selwyn-Clarke. *Branch VI, Tropical Medicine:* J. Faustone, C. H. Heppenstall.

M.S.—*Branch I, Surgery:* A. L. Abel, A. W. Adams, J. A. W. Ebden, C. H. S. Frankau (University medal), R. J. McN. Love, H. W. S. Wright.

* Qualified for the University medal.

UNIVERSITY OF ABERDEEN.

AT the graduation ceremony held on July 14th the following degrees were conferred:

LL.D. (HONORARY).—William Maddock Bayliss, M.A., D.Sc.Oxon., B.Sc.Lond., F.R.S., Professor of General Physiology at the University of London.

M.D.—*J. Kirton, *G. F. Mitchell, A. J. Will.

M.B., CH.B.—†‖Annie Thain, ‡§Elsie J. Mann, ‡§G. O. Thornton, §C. A. Allan, A. B. Clark, R. Dawson, D. R. Dugan, Frances M. Duguid, L. I. Duncan, Margaret F. Fraser, Barbara M. Geddes, J. W. Gill, Ethel E. Gray, C. Joiner, Patricia H. Low (or Cassie), §M. Mindé, F. H. Mollière, R. M. Savege, Elsie J. Scorgie, Jenny H. A. Simpson, Francis M. G. Sinclair, Elizabeth M. Walker, Nora I. Wattie, F. Wilson.

The John Murray Medal and Scholarship and the Lyon Prize for the most distinguished graduate in Medicine (M.B. and Ch.B.) of the year 1921 have been awarded to Annie Thain.

D.P.H.—Emily M. Badenoch, C. A. Harvey, F. D. R. Keyt, Winifred M. A. Kindness, Mathilda F. Menzies, D. I. Walker.

* Commendation for thesis.
† First class honours.
‡ Second class honours.
§ Completed final medical professional examination with distinction.
‖ Completed final medical professional examination with much distinction.

UNIVERSITY OF GLASGOW.

AT a graduation ceremony held on July 18th the following degrees were conferred:

M.B., CH.B.—*J. R. Learmouth, †G. W. St. C. Ramsay, †W. L. Templeton, †J. M. M. M'Kenzie, T. F. Arnott, J. Barlow, A. K. Bowman, T. M. Burton, D. S. Campbell, T. C. Christie, P. B. Farrar, L. M. Johnston, A. A. Kirkland, W. M. M'Cash, A. H. M'Lean, G. L. Mitchell, Rebecca E. Roulston, E. J. T. Thompson, J. Watt, J. C. Watt, Jeanie L. D. Wilson, R. M'L. Wilson.

* With honours. † With commendation.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following having passed the requisite examination have been admitted Fellows:

A. D. E. Bayliss, K. P. Brown, R. S. J. Fitzgerald, A. Fowler, W. J. Grant, D. F. Hegarty, A. Langwill, J. J. Liston, J. S. Robinson, J. J. McI. Shaw, R. W. Smith, Q. Stewart, W. R. Stewart, P. P. Wright.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FINAL EXAMINATION.—*Medicine:* L. R. Bergson, F. Walwyn, H. W. Amyes, R. R. Waters, A. R. Rellum, H. P. Samuel, V. P. Menon. *Surgery:* J. K. Sen, H. W. Amyes, L. H. Peries, J. Hagard, V. P. Menon. *Midwifery:* J. G. Collee, F. Walwyn, R. R. Waters, H. P. Samuel, J. Hagard. *Medical Jurisprudence:* R. W. P. Hall, G. G. King, I. B. Cummings, A. W. Buchan, J. B. Hendry, J. S. Allan, J. M. Cockburn, W. L. Murray, H. G. F. Cubitt, H. W. Amyes, A. M. Samarasinghe, S. A. Ho Asjoe, A. S. Wickremesinghe, F. P. Lisboa-Pinto, A. R. Rellum, Jemima M. McK. Calder.

The following candidates, having passed the Final Examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:

W. B. Stott, E. S. Godlieb, O. P. Fox, J. H. Bain, V. H. L. Anthonisz, R. E. O'Keeffe, J. S. A. Rogers, R. N. Nanda, A. Shakur, H. E. C. Cezair, J. Pedris, A. G. Thom, A. Y. Khan, E. J. Swirsky, J. McN. Campbell, D. M. Scrimgeour, R. Abramsky, Jane Copes, E. W. Johnson, J. Connal, J. K. Holmes, H. Brown, A. W. Hart, H. McKerlie, G. ap V. Jones, E. P. Dewar.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following were successful at the examination at the termination of the sixty-sixth session—May-July, 1921:

*Surgeon Commander S. Dudley, R.N. (winner of "Duncan" and "Lalcaca" Medals), *Dr. K. S. Nigam, Flight Lieutenant T. C. Morton, R.A.F. Medical Service, *Dr. A. C. Vardon, *Captain J. P. Litt, R.A.M.C., *Dr. Lee Ee Liat, *Dr. J. Kilian Clarke, *Dr. K. A. Gandhi, *Dr. E. T. C. Stedeford, *Wing Commander H. M. Stanley Turner, R.A.F. Medical Service, Dr. H. C. Sinderson, Major W. B. Borden, U.S. Army, Surgeon Commander S. Roach, R.N., Dr. A. M. Walcott, Dr. J. Singh, Dr. R. Hunter, Dr. F. Dahlerup, Dr. W. Milne-Tough, Dr. L. B. Perry, Dr. R. M. Bharucha, Dr. E. J. Clark, Dr. R. L. Symes, Dr. J. A. Anklesaria, Captain P. M. Antia, I.M.S., Dr. L. W. Barlow, Dr. S. N. Bardhan, Dr. J. C. Callanan, Dr. H. G. Holdbrook, Dr. E. Matthai, Dr. W. J. McClintock, Dr. J. S. Nicolson, Dr. A. C. Paterson, Dr. P. Popoff, Dr. W. S. Ratnavale, Dr. J. A. Ross, Dr. A. D. Soares, Dr. R. H. Turner, Dr. S. de Vos, Major N. M. Wilson, Dr. J. A. A. Duncan, Dr. J. Grell, Dr. P. R. Lentin, Dr. Hassan A. Soud.

*Passed with distinction.

The Services.

DEATHS IN THE SERVICES.

SURGEON-MAJOR ROBERT MACNAMARA COWIE, D.S.O., late 1st Life Guards, died suddenly of heart failure at Godshill on July 6th. He was the fourth son of the late Mr. Hugh Cowie, Q.C., and was educated at King's College, London, where he took an open scholarship, qualifying as M.R.C.S. and L.R.C.P. Lond. in 1897. After holding the posts of house-surgeon, surgical registrar, and tutor at King's College Hospital, he went to South Africa as a civil surgeon, and he served in 1900-01 in the Second Cavalry Brigade of the Natal Field Force, taking part in the operations in Natal, including the action on the Tugela heights, the relief of Ladysmith, and the action at Laing's Nek; in operations in Natal, including the action at Belfast; and operations in Cape Colony; and received the Queen's medal with five clasps. After his return to England he joined the Household Cavalry as medical officer of the 1st Life Guards on October 15th, 1902, retiring on March 13th, 1920. He served in France during the late war, was mentioned in dispatches in the *London Gazette* of June 15th, 1916, and was gazetted D.S.O. on June 3rd, 1916.

Medical News.

THE house and library of the Royal Society of Medicine will be closed during the whole of August for repairs and cleaning.

THE annual old students' dinner of St. Thomas's Hospital will be held on Friday, October 28th, at the Wharncliffe Rooms, Hotel Great Central. Dr. H. W. G. Mackenzie will be in the chair. The usual notices will be sent out early in October.

THE summer school of civics is being held this year at Guildford from July 30th to August 13th. Among the courses is one on the welfare of infants and young children.

THE Central Society of the Association Générale des Médecins de France has resolved to raise the annual subscription, commencing in 1922, from Fr.20 to Fr.30.

A COURSE in exotic pathology and medical parasitology will be held at Hamburg on September 29th. Lectures will be given by Drs. Nocht, Fülleborn, Giemsa, Martini, Mühlens, Paschen, De Rocha-Lima, and others.

THE new Rumanian University at Cluj in Transylvania now contains 2,000 students. Three chairs in the medical faculty are occupied by French professors, namely, Dr. Champy (histology), Dr. Thomas (biological chemistry), and Dr. Guiart (history of medicine).

DR. K. MUIRA, professor of medicine in the Imperial University, Tokyo, has been elected a foreign correspondent by the Académie de Médecine of Paris. Professor Muira, who accompanied the Japanese delegation to the Peace Conference in Paris in 1920, has lately been in Europe as a member of the staff of the Crown Prince of Japan.

THE annual report for 1920-21 of the Manchester and Salford Invalid Children's Aid Association, the object of which is to bring delicate and crippled children into touch with agencies which prevent and cure disease, contains an interesting medical report by Dr. A. A. Mumford on the work at the Recovery Home. Dr. Mumford applies the measurement of respiratory capacity as a test of the ultimate effect of hospital and convalescent treatment upon the children, as he considers that it bears reference to subsequent as well as to immediate health, and is a mental standard of will power as well as of bodily health.

THE second congress of the Italian Society of Medicine and Natural Science will be held at Bologna in September.

A NEW Institute of Clinical Medicine has been opened at the University of Pisa.

ACCORDING to the *Lyon Médical* more than twenty German medical men figure among the war criminals to be tried at Leipzig.

THE number of women students of medicine in the University of Paris has increased from 213 in 1915 to 512 in 1920.

LORD DAWSON, who, as we announced last week, had given notice to call attention to recent rulings as to the privilege of medical men with regard to evidence in courts of justice, and to move that the matter be referred to a Select Committee of the two Houses of Parliament, announced in the House of Lords on July 27th that he had received an intimation from the Government that it would be more convenient if the motion were postponed. He assented to this, but hoped the delay would be short.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediscra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

"A. M. M." inquires what effective rate of tax is payable on the combined incomes of himself and his wife.

*** The total tax payable is as follows:

Earned (self) £921, less 10 per cent., is £921 − £92 =	£819	0 0
Investment income (self)	£131	0 0
Investment income (wife)	£682	0 0
Total "assessable income"	£1,632	0 0
Allowances—Personal £225		
" Children (three) £90		
	£315	0 0
Total income chargeable to tax	£1,317	0 0
£225 at 3s. £33 15 0		
£1,092 at 6s. £327 12 0		
	£361	7 0
Deduct life assurance allowance, £20 at 4s. 6d. ...	£9	0 0
Net tax chargeable	£352	7 0

Of which amount £171 19s. has been paid by deduction from income. As the total of the combined incomes is £1,724, it follows that the effective rate payable is approximately 4s. 1d., as that is the rate which would yield the amount payable—namely, £352 7s.

LETTERS, NOTES, ETC.

CALOMEL IN DIARRHOEA.

DR. W. E. FELLOWES (Nuneaton) writes: I feel it my duty in view of the present heat wave to again call the attention of the medical profession to the unappreciated value of calomel as a remedy for summer diarrhoea, especially in infants. I have had over thirty years' experience of its use, and where it has been fairly administered have never known it to fail. Calomel is not the poisonous drug it is popularly supposed to be. I have given it in large doses to infants of a few weeks old and upwards without noting any deleterious effects. The secret of success seems to me to lie in the quantity administered; so much so, that I have come to the conclusion that if calomel fails to cure diarrhoea it is because sufficient of the drug has not been administered. I give infants 2-grain doses every two hours until the symptoms subside. In cases of vomiting where the drug is rejected I add an equal quantity of oxalate of cerium. I think that this remedy should be on hand in tablet form at all baby centres. For adults I prescribe 5-grain doses with or without cerium oxalate in equal quantity, according as vomiting is present, every two hours until the diarrhoea subsides. I have had a limited experience of the use of calomel in the early stage of enteric fever with marked success. I had a case some time ago of a soldier returned from abroad with diarrhoea giving a dozen or more evacuations daily, from which he had suffered for some months in spite of treatment. This case under the calomel treatment recovered in a few days. I wish some medical man resident in a place where Asiatic cholera occurs would give this treatment a trial and report results. I should advise commencing with 5-grain doses every hour and increasing the quantity to 10 grains or more if necessary. I have only met with salivation in those cases where the bowels were confined in adults, but have never seen it occur in cases of diarrhoea. I never use calomel alone for adults as a purgative, but always combine it with some other laxative agent.

AN APPEAL FOR RUSSIA.

DR. B. BELILOVSKY, M.D.(Petrograd), L.R.C.P.and S.(Edin.), writes from 8, Eccleston Street, London, S.W.1: As a member of the British Medical Association, I appeal to all my colleagues in the British Isles and the British Empire, imploring them to hear the cries and groans of the millions of my countrymen who are dying from starvation, cholera, typhus, dysentery, and malaria. The women and children are waiting for your help—not merely your sympathy but your real and material help. We who are physicians know that to infectious disease there are no boundaries, no nationality, no rich, no poor, no strong, no weak. Infectious disease in its march destroys all that it meets. I ask the British Medical Association—the most powerful society in the world in its spirit, organization, and traditions—and all physicians to raise aloft the banner of humanity for speedy help to my country by sending medical sanitary detachments, medicaments and hospitals to the areas of distress and famine. I shall be happy to furnish all particulars on application.

LONDON "TOLL" EXCHANGE.

THE Postmaster-General announces that in order to relieve the pressure on the London Trunk Exchange, a new telephone exchange is in course of erection and is expected to be opened towards the end of the summer. The new exchange will be known as the London Toll Exchange. It is of a new type and has been designed so that the telephone traffic between London and the nearer provincial towns may be handled with greater dispatch. At the date of opening, the trunk lines between London and provincial towns within a distance of approximately twenty-five miles radius from the City will be transferred to the Toll Exchange from the London Trunk Exchange. The area served will contain about 300 exchanges and rural call offices and will include the following towns: Aylesbury, Luton, Dunstable, St. Albans, Watford, Brentwood, Dorking, Leatherhead, Woking, Weybridge, Hertford, Ware, Maidenhead, Uxbridge, and Sevenoaks. Additional trunk lines are being provided and other measures adopted so that subscribers may effect calls with as little delay as possible. An explanatory circular will be sent shortly to each subscriber in the London telephone area.

FACTORY GIRLS' COUNTRY HOLIDAY FUND.

WE have received the following letter, signed by the Bishop of Kensington, the Countess of Sandwich, Mrs. Creighton, Lady St. Helier, the Chief Rabbi, the Rev. R. F. Horton, D.D., Mr. Frank Lloyd, and Mr. J. F. Green: "Will you allow us to make a very urgent appeal for funds to send working girls and women away for a short holiday? Many of those who are hoping to go during the next few weeks have never slept out of London for a single night. We are almost at the end of our resources, and the need for our help is probably more urgent than ever before. Trade depression has resulted in the girls being the main support of thousands of families, who but for their earnings would be on the verge of starvation. The general standard of comfort in the average home is lower than it has been for many years, and the health of the community in the crowded and airless factory districts of London has deteriorated considerably. Nor has it been possible for the girls to save for a holiday as they have done in former years. Good food, rest, and fresh air for a short time will make it possible for many to continue their work through the winter, who would otherwise break down under the strain and privation they have had to bear for so many months, and the short holiday will give them fresh hope and courage." Contributions may be sent to Mr. J. F. Green, M.P., 75, Lamb's Conduit Street, W.C.1.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 30, 31, 33, 34, and 35 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 32 and 33.

THE appointment of certifying factory surgeon at Tisbury (Wilts) is vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line...	0	1	6
Whole single column (three columns to page)	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.